













A U S T R A L I A)

EXHIBITING

NEW HOLLAND, VAN DIEMEN'S LAND, AND ALL  
THE SETTLEMENTS, FROM THE FIRST AT  
SYDNEY TO THE LAST AT THE  
SWAN RIVER.

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TO

THE RIGHT HONOURABLE  
GENERAL SIR GEORGE MURRAY,

ONE OF HIS MAJESTY'S PRINCIPAL SECRETARIES OF  
STATE,

*&c. &c. &c.,*

THE  
PICTURE OF AUSTRALIA

IS MOST RESPECTFULLY DEDICATED,

BY

THE AUTHOR.



## NOTICE.

THE great Southern Continent, with the adjacent island of Van Diemen's Land and the smaller islets, has been the subject of much description, some of which is of a conflicting and contradictory nature. On the one hand, those countries have been held out as a "Canaan of plenty," where the settler has nothing to do but set down and wax wealthy by the mere operation of nature; and, on the other, they have been depicted as the abodes of crime, and the sport of the seasons. The new settlement at the Swan River has given them more than their wonted degree of interest; but, at the same time, it has tended to concentrate the public attention, perhaps too much, to that particular spot.

Keeping these circumstances in view, it has been my object to set Australia before the reader in its true aspect and condition, as far as there are data for determining these; and leave him to draw his own conclusions. In order to accomplish this, I have collated the published authorities with some care; and I have been fortunate enough to receive, from those upon whose ability and veracity I can

implicitly depend, a considerable number of new facts, as well as the means of correcting a few mistakes in former writers. In short, I have endeavoured to make the book a “Picture of Australia,”—a mere outline, it is true, but still, I hope, faithful to the original in the principal features.

In treating of a great continent, of which the coasts only are known, and some of these but very imperfectly, it has not been possible to connect the several parts without occasionally offering an opinion. I trust, however, it will be found, that I have done that, generally, with so close an allusion to the established phenomena, as will induce the candid reader to see and to confess that, whatever faults there may be in the execution of my little book, the intention has been upright.

Respecting the Colonies and Colonists, I have not ventured to write much, as I found that the picture of these is in sunshine or shadow, according as the delineator has or has not been fortunate himself; and thus, as I could not implicitly believe the reports myself, I did not feel that I should be justified in laying them before that public, from which I have already received much more attention than I had any title to expect.

THE AUTHOR.

• *September, 1829.*

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THE  
PICTURE  
OF  
A U S T R A L I A.

CHAPTER I.

GENERAL DESCRIPTION.

THE extensive lands in the Great Southern Ocean, for the knowledge of which the civilized world is chiefly indebted to British enterprise; on several portions of which British colonies have been established with unprecedented success; and on other portions of which similar colonies may be expected from time to time to be formed, and to be equally successful; have many claims on the attention of every one to whom knowledge and the extension of civilization are desirable; and particularly to those who may be dis-

posed to seek a home and prosperity in those distant lands. But, desirable as this information is, it has to be gleaned from so many sources, and collated with so much care, that the labour of the acquisition is very great: not because the information is not authentic, for there is no country of which our knowledge, so far as it extends, is so well substantiated; but on account of the voluminous form in which it exists. A summary which shall embrace all the points—which shall describe the natural state of those countries, the resources which they afford, and the advantages which they offer in respect both of their productiveness and their position—which shall confirm those general views by a statement of what has been effected by the existing colonists—and which shall point out the most likely means by which the adventurer may ensure success—is, therefore, a desideratum. This it is the object of the following pages to supply; and if it be a failure, the fault must be in the execution, for the published authorities have been carefully consulted and compared, and many additional facts, some of which are of very recent date, have been obtained from unpublished journals, and conversations with persons who have visited the colony, and were well qualified for judging of it, both in an economical and a philosophical point of view.

The enticements which Australia holds out to the intended settler are, a boundless extent of soil, unappropriated by any other people for purposes of

cultivation, that soil situated in latitudes having such a range as to be adapted to the growth of every useful vegetable, and the rearing of every useful animal ; and, great part at least, enjoying a climate much better adapted to the constitution and health of Europeans than any other country to which Englishmen resort for the purpose of settling. When indeed one compares those extensive colonies and dependencies into which Britons have carried their own activity, and the means and the example of civilization to others, one can hardly avoid fixing upon Australia as the only one in which the settler can find a permanent home for himself and his descendants. Hindustan, the shores of South America, the islands of the Colombian Archipelago, and (as experiment has proved) the territories of Southern Africa, are not adapted for the permanent residence of Englishmen ; and the fact is, that of those who do resort to these places, the principal object is, to earn as speedily as they can, an independence, with which they may return to the mother country. Now, such views strike at the root of improvement to the country visited ; and hence, in the places alluded to, Britons may, in as far as the progress of civilization is concerned, be said to be sojourners, not inhabitants. Thus the only British territory which can be put in competition with Australia, is the British portion of North America ; and it requires but little comparison to discover on which side the advantage lies.

It requires no extended argument to prove, that

in order properly to bring out the capabilities of a country, the people must consider it as their own, and thus the colonization of Australia, if completely effected, would add to the industrious, enjoying and rational world, more than could be added by any other means or measure, to which reference can at present be made. And the discovery of those vast regions, when the interior has been as carefully explored as the coasts, will give to the conquest of knowledge as much as the Macedonian conqueror fancied he had given to the conquest of the sword, and the feeling will be far different,—they may rejoice that the field of improvement is so extensive, and the means so ample.

But the advantages and the interest of Australia are not confined to the Australian settler: to the student and the lover of nature, it is a new world in almost all its particulars—in the modification of its seasons; in the character of its surface; in the courses of its rivers; in the appearance of its plants; in the nature of its animals; and in the character and habits of its original inhabitants. So striking, indeed, is the contrast that it forms, in all these respects, and in many subordinate ones, that the full investigation of it will add to the book of human knowledge a volume as singular as it is new. When, too, its geographical position is considered, it forms as it were a connecting link between three of the quarters of the world, as marked out by the elder geographers: its communication with Asia, with

Africa, and with America, being more easy than that of the average of any of those divisions of the world with the other two. Over every other quarter of the world it has this farther advantage, that it can be circumnavigated with ease, and, comparatively speaking, at all seasons. This is not the case with any of the four quarters. Both the old continents are unapproachable on their northern shores ; and from the Mediterranean, which forms the boundary of Europe, Asia, and Africa, a vessel must circumnavigate the entire quarter to reach the nearest opposite sea. The passage by the South of America is one of great hardship and danger ; and even where that continent is the narrowest, it is a voyage of many thousand miles before the opposite shore can be reached. But Australia may be sailed round with the same facility as Great Britain ; and, considering the extent, the dangers are not greater. The passage to Asia is direct and short ; that to Africa and the West of America is equally direct ; and even to Europe the passage may be made in less time than from the East of Asia or the West of America. If therefore the resources of Australia were properly called forth by a numerous and industrious population, the commercial advantages that it might derive from other lands, and bestow upon them in return, might be greater than can at present be even imagined.

That general notion of so extensive a country, which is essential to the forming of a proper estimate

of its value, can be best obtained by arranging the facts into several sections.

### I. GEOGRAPHICAL POSITION AND EXTENT.

Australia, in the most comprehensive meaning of the term, is the general name of very numerous portions of land, all insulated from the rest of the world, and varying in size, from a continent equal to full three-fourths of Europe, to small islets and banks which barely lift their heads above the surrounding ocean, are swept over by the spray of every storm, hardly contain one living vegetable, and most likely have been raised from an unfathomable depth, by small insects, within a period comparatively brief. The whole of those islands lie contiguous to one another, to the South-east of Asia. They may be, in fact, regarded as a continuation of that great cluster of islands, which, beginning at the west point of Sumatra, off the coast of Malaya, in about 5° north latitude, and 95° east longitude from London, stretches eastward almost to 180° northward, as far as 18° north, and southward to nearly 50° south. The portion of them lying northward of 10° south and eastward as far as 130° were known long before the large islands, and very long before the English were established on these; so that a notice relating chiefly to British Australia, may be restricted to the large island of New Holland, the comparatively smaller one of Van Diemen's Land, and the

little isles and islets with which the shores of these are surrounded.

At one time, indeed, a British colony was established much farther to the east, upon Norfolk Island, a small spot, situated in about latitude 30° south, and longitude about 170° east, being about four hundred miles north of New Zealand, and a thousand miles east of the coast of New Holland. That island has a surface of about eleven thousand acres, and the level parts, where the soil is not liable to be washed away by the heavy rains, are very fertile. The island also abounds in Norfolk pines, (*Auracaria excelsa*), a tree resembling the spruce, and growing to a great height; but the island is surrounded by reefs, contains no natural harbour, and on that account the settlement has been abandoned.

NEW HOLLAND lies to the south-east of Asia, nearly between the meridians of Macao in China, and the Kurile Isles on the north-east of Japan. The nearest continental land is Malaya, the south-east point of Asia, and its distance in a straight line is about one thousand seven hundred miles. The nearest land immediately to the north of it is part of New Guinea, from which it is distant rather more than one hundred miles; and the next in that quarter is the Island of Timor, the largest and southernmost of the Spice Islands, distant about three hundred miles. On the east, the nearest land of any consequence, toward the north part, is New Caledonia, about nine

hundred miles distant, and toward the south part is New Zealand, about one thousand four hundred miles off. On the south, the only land of consequence, or probably that exists, is the Island of Van Diemen's Land, distant about one hundred miles ; the main land of Africa on the west, is about one thousand eight hundred miles off where nearest ; and the average length of a ship's course from England is about sixteen thousand miles.

New Holland lies between the latitudes of  $10^{\circ}$  and  $39^{\circ}$  south, so that its extreme dimension from north to south, is about two thousand miles. This greatest extent in latitude is toward the east part, the northmost point being Cape York, on Torres' Strait, opposite New Guinea, and the southmost, Wilson's Promontory on Bass's Strait, opposite Van Diemen's Land. The extent in longitude is about two thousand five hundred miles ; the eastmost point being Indian Head, near Breaksea Spit, and the westmost, Cape Escarpée on the south of Shark's Bay. Both those points are nearly on the same parallel of latitude, about the 25th degree. Thus, the largest dimension of New Holland is from east to west ; and the differences of the extreme points, both in latitude and in longitude, give very nearly the true measures.

The surface of the country does not, however, amount nearly to that of a rectangle, having those dimensions. The island is something of a kidney shape, having the convexity towards the south in-

clining a little to the west. The western extremity of the south side is about three hundred miles farther to the north than the eastern ; and the great Bight about the middle of the south side, about longitude  $137^{\circ}$  east, lies two hundred and fifty miles farther to the north, so that the middle is five hundred and fifty miles shortened towards the south. The east coast is also irregular. The southern extremity of it lying about two hundred miles to the west of the middle, and the north point nearly seven hundred miles to the west of the same. The north coast is still more irregular : immediately to the westward of Cape York, there is a large bay three hundred miles wide, and extending more than four hundred miles southward of that part of the coast, so that the north-east part consists of a triangular peninsula, about four hundred and fifty miles long to the bottom of the bay, (the great Gulf of Carpentaria,) and more than three hundred miles broad at the head of that gulf. At rather more than four hundred miles to the westward of the Gulf of Carpentaria, the general line of the coast trends to the south-west, and meets the west coast at North-west Cape, about seven hundred miles south of the parallel of Cape York. The west coast also has a curvature, the northern part of it being convex toward the west, and the southern concave toward the same quarter.

The following remarkable points and distances will serve to determine the figure, and fix the position of the outlines of New Holland, so as to render in-

telligible the description of the smaller bays, harbours, and rivers, the kind of soil and productions, and the locality of the settlements. From Wilson's Promontory, north-eastward to Cape Howe, a distance of about two hundred and fifty miles, may be considered the south-east coast. From Cape Howe northward, and inclining to east to Breaksea Spit, a distance of about nine hundred and fifty miles. From Breaksea Spit north-west, inclining to north to Cape York, about one thousand one hundred and fifty miles. From Cape York westward to Cape Van Diemen, on Melville Island, about nine hundred miles west, inclining in the général line a little to the south, and having the great Gulf of Carpentaria stretching southward in the eastern part. From Cape Van Diemen, southwestward to North-west Cape, about one thousand three hundred miles. From North-west Cape southward, and on the average a little to the east to Cape Van Leeuwin, about nine hundred miles. From Cape Van Leeuwin eastward, and a little north to the bottom of the great Bight, about one thousand two hundred miles. From the bottom of the Great Bight, south-eastward to Wilson's Promontory, (which completes the boundary,) about one thousand one hundred miles. Collecting these, we have :—

	MILES.
A.—Wilson's Promontory to Cape Howe, N. E. ....	250
B.—Cape Howe to Breaksea Spit, N. a little E. ....	950
C.—Breaksea Spit to Cape York, N. W. ....	1150
D.—Cape York to Cape Van Diemen, W. ....	900

	MILES.
E.—Cape Van Diemen to North West Cape, S. W....	1300
F. From N. W. Cape to Cape Van Leeuwin, S.....	900
G.—Cape Van Leeuwin to Bight, E. a little N. ....	1200
H.—From Bight to Wilson's Promontory, S. E. ....	1100
Circumference in round numbers, about .....	7750

This tabular arrangement will enable reference to be made to any particular place, occurrence, or phenomenon, as on coast A, coast B, and so on, by which means much uninstructive repetition will be avoided.

Different portions of the coasts of New Holland have also been named after the navigators by whom they were first discovered, the ships which they commanded, or individuals whom those navigators wished to honour. The parts originally first seen by British navigators, extending from about the middle of the south coast, eastward and northward to Cape York, have been called by the general name New South Wales; and where the coast had been previously seen and named by any other nation, the English have not disturbed the name. Taking the coast westward from the termination of the British discoveries, the land, as far as to near Cape Leeuwin, was seen by Pieter Nuyts, a Dutchman, in 1672, and is often called Nuyts' Land, after him. Nuyts' Land corresponds in general with coast G in the above enumeration. From a little to the south-east of Cape Leeuwin to near the Swan River, the coast gets the name of Leeuwin's Land, having been first

seen by the commander of a Dutch vessel named the *Lioness*, in 1622. The coast from near the Swan River to Cape *Escarpée*, was named after *Edel*, a navigator who saw the coast in the year 1619; and the land from Cape *Escarpée* to North-west Cape, was called *Endraght's Land*, after the vessel in which Captain *Dirk Hartog* touched at it in 1616. These three form coast F, in the above table. The whole line of the north-west coast, from North-west Cape to Cape *Van Diemen*, coast E, got the name of *De Witt's Land*, from a Dutch navigator, in 1627, 1628; and the same fleet saw the Gulf of *Carpen-taria*, and named it after a General Carpenter, whom they had on board. The west part of coast D, was seen by *Zeachen*, a Dutchman, in 1618, and by him named *Van Diemen's Land*; but as that name has been continued to the island on the south, the north coast has got the name of *Arnhem's Land*. Of New South Wales, the greater part of the east coast, from near Cape *Howe* to Cape *York*, was discovered by Captain *Cook*, in 1770. The coast westward, to beyond *Wilson's Promontory*, was discovered by Mr. *Bass*, in 1798. Still westward, to about longitude  $140^{\circ} 30'$ , was discovered by Captain *Grant*, in 1800. Westward still, to about longitude  $138^{\circ}$ , was discovered by Captain *Baudin*, in 1802; and the intermediate portion, westward, to the termination of *Nuyts' discovery*, was discovered by Captain *Flinders*, in 1802. In these, though the details were not then, or, in some places, are not yet filled up,

the general outline was determined, and the researches of the moderns have in general verified the positions laid down by the early Dutch navigators.

**VAN DIEMEN'S LAND.**—This island, as has been said, lies to the southward of the eastern part of New Holland, separated from it by Bass's Strait, which where narrowest, is about one hundred miles wide. Van Diemen's Land is a sort of four-sided figure; but the sides are of very unequal length, and exceedingly crooked in their outlines. The extreme north point is about latitude  $40^{\circ} 40'$ , and the extreme south about  $43^{\circ} 40'$ , which makes the greatest length in that direction about two hundred miles. The extreme west point is in about  $144^{\circ} 30'$ , and the extreme east in about  $148^{\circ} 30'$ , which makes the greatest breadth about one hundred and sixty miles. The four most remarkable points that determine the figure of Van Diemen's Land, are Cape Portland, on Bass's Strait, on the north-east; Cape Grim, on the north-west; South-west Cape, on the south-west; and Cape Pillar, on the south-east. Cape Portland and Cape Grim are nearly upon the same parallel, and their distance is about one hundred and fifty miles. South-west Cape lies about eighty miles to the eastward of Cape Grim, and the distance between them is nearly two hundred and eighty miles. Cape Pillar lies about twenty miles north of South-west Cape, and their distance is about one hundred miles. Cape Pillar lies nearly south of Cape Portland, and distant about one hundred and fifty miles.

As from this account of them it is evident that the coasts of Van Diemen's Land lie nearly in the directions of east and west, north and south, it will be sufficient to refer to them, as such, without any particular names. The north coast has a general curvature southward, and is very much broken by projecting headlands and bays. The west coast is straighter in its general direction; but it also contains bays and headlands. The south coast is remarkably irregular towards the eastern part; and so is the east coast towards the south. The general character of the country is great irregularity of surface; and where that is the case, except when the mountains run in straight ridges parallel to the shores, it is an almost universal law in the formation of countries, that the lines of the shores are very crooked.

## II. SHORES, BAYS, AND MOUTHS OF RIVERS.

With the exception of the Island of Van Diemen's Land, which in consequence of its small size, is easily traversed, and a small portion behind the principal colonial settlement of Sydney, on coast B, the shores of Australia are the only parts that are known; and therefore some account of their appearance is necessary to the formation of that very imperfect judgment of the general value of the country, which is all that the data of which we are in possession will afford; nor is there any saying from the experience that has hitherto been ac-

quired whether the coasts afford a safe means of judging of the country that lies inland, though there can be no question that they will be decisive of the utility of the country as respects its commercial value, and that is the principal light in which it must in the meantime be viewed. Indeed, as affects the immediate colonization, even as effects it or can affect it for many centuries, the general character of New Holland, does not need to be taken into the account, as enough that is abundantly fertile and sufficiently accessible has already been discovered, to meet any increase of population that can be calculated upon. Still, it were well that any points, upon all the coasts that are advantageously situated for colonies should be taken possession of, not only that the civilized inhabitants may all be one people, speaking one language, but that, in the event of a war, England may have no enemy in those seas, to harass her colonies, and destroy her commerce.

Any general account would not however be useful, or even intelligible without a previous knowledge of the details, which we shall accordingly collect and condense, beginning from Wilson's Promontory, and following the same rules as formerly in tracing the directions of the shores.

The whole of shore A, from Wilson's Promontory to Cape Howe, is a straight sandy beach; the ground behind it low, sandy and barren, with occasional stunted bushes, and without any fresh

water. Hills of considerable elevation are seen at the distance of sixty to eighty miles inland, but neither their character, nor that of the intermediate country is known. From Cape Howe northward, shore B for some distance retains its sterile character. It presents small hills of indurated clay, and beaches of sand. Two-fold Bay, about thirty miles north of Cape Howe, is the only inlet, and it is shallow, and ends in swamps. Behind the bay there is a good deal of wood, and some land that might be cultivated, but it is not of good quality. The whole coast from Two-fold Bay northward, to Shoal Haven River, consists of an alternation of swamps, sandy beaches, and elevated points, the latter being composed of soft clay, slate, and indurated clay, or, when higher, of soft sandstone. There are some openings in the coast, but they are, in consequence of the bars across their entrances, accessible only by boats, and by those only in calm weather. The surface is stony and irregular, and though the soil in the ravines has the appearance of fertility, it is flooded to a great depth during the inundations. The country inland is mountainous; and there is nothing to invite settlers to this part of the shore.

Into Shoal Haven there falls a river of considerable magnitude, but the entrance is shallow and difficult, and the country for a considerable distance along the banks is very swampy.

The whole sea coast to the south of Shoal Haven

may be regarded as unfit for any useful purpose. The elevated points are rocky and sterile ; and the lower surfaces are marshes, inundated during the rains, and many of them lagoons, at all times covered with salt water ; and the beaches by which they are separated from the sea, appear to be bars which have progressively been raised by the joint action of the land floods and the tide. It is by no means improbable that this part of New South Wales is in a state of progressive improvement ; and that the process by which the inlet of the sea has been changed into a detached lagoon, the lagoon into a marsh, and the marsh into an alluvial land occasionally flooded, may go on till the land be so elevated, as to project the water into the sea, by one channel of a continuous inclined plane, and so become fit for cultivation. But this, though a very probable, and indeed a very obvious process, is one with which man cannot interfere ; and therefore all that he can do is to avail himself of those portions of the country which Nature has already made fit for his labour, and stand still and admire the progress of her handywork, in such situations as this. It is in this winning of new land from the ocean, that a knowledge of New Holland adds so much to the physical philosophy of the globe ; and in the district from Cape Howe to Shoal Haven, we have an instance of one of those modes of operation, that—by the joint agency of the land floods and the eddy which sets northward from the projecting

points by the interruption of the southward current at these—thus deposits, in the entrance to the inlet, the débris which the land-flood brought down. Very often vegetation comes in aid of the forming land. The different species of trees known by the common name of mangrove, which grow and propagate themselves in the shallow margins of the sea, gradually creep outward into that element, and thus form banks which are proof against the waves; but they add not to the valuable land, for behind the thicket of mangroves there is generally found a salt-marsh or a swamp; or if the flat land which they inclose, be in a climate sufficiently warm, and having a dry season sufficiently prolonged for evaporating the water behind the mangroves, the soil is totally arid and without vegetation, and generally, as we shall afterwards find when we examine the intertropical shores of Australia, covered with an encrustation of salt, which makes it seem to an European, as if the snow of Australia were proof against the burning influence of a tropical sun.

To the northward of Shoal Haven, the coast assumes a different character. It there rises up into lofty cliffs, composed chiefly of horizontal strata of sandstone, resting upon claystone, and exhibiting, in some places, beds of coal in the face of the beach. This lofty shore extends northward nearly to Botany Bay; the highland interior of it gets the name of Illawarra; and it is pretty thickly covered with wood, chiefly a species of *celestrina*, the cedar of the colonists.

The same bold shore of sandstone cliffs extends considerably to the northward ; in the course of it some of the best harbours, such as Botany Bay, Port Jackson, Broken Bay, and Port Hunter, are contained. The cliffs which form the outer heads at Port Jackson are very bold and precipitous ; and the land within is so nearly of the same elevation, that it is not at all surprising that Captain Cook should have passed that excellent and extensive natural harbour, without the least suspicion of its existence. The number of coves or branches into which Port Jackson ramifies is very numerous ; and as the country around is diversified in its surface, and, though not naturally very rich, yet susceptible of cultivation, and accessible by water to an immense extent, it is difficult to imagine a more advantageous situation than that of Sydney, both for foreign trade and domestic intercourse.

From Port Jackson to Broken Bay, the same bold shore of perpendicular cliffs of sandstone, dispersed in horizontal strata, still continues, though there it is occasionally broken by low beaches of sand, behind which there are salt marshes or lagoons. Broken Bay is even more ramified than Port Jackson, and the largest river in the south-eastern part of the colony falls into it, but it is not adapted for vessels, except those of small burden, though boats and lighters can proceed a considerable way into the interior, where the soil is much more fertile than towards the sea.

A little northward of Broken Bay there is a low sandy beach, and a lagoon and swamps, which separate the fertile land to a considerable distance from the sea ; but within about eight miles of Newcastle, the high sandstone cliffs appear again, and, as is the case to the southward of Botany Bay, contains seams of coal. Two seams appear for the greater part of the distance toward the north ; but southward, they gradually approach each other, and, at the southern termination of the cliffs, the strata are not interrupted, but bend or dip down under the sea. These strata of coal are those worked for the supply of the colony. We have no precise information as to their quality, but the quantity is abundant.

A little to the north-east of Port Hunter, there is a considerable opening, Port Stephens, but the land around it is sandy and barren, and the rivulets of fresh water that fall into it come from swamps at no great distance. From Port Stephens, northward to Port Macquarie, in about latitude  $31^{\circ} 20'$ , the shore is of a different character from any that has yet been mentioned. The hills recede to some distance from the shore, which is very broken and irregular, with a number of shallow bays and lagoons, with small rivers of fresh water.

The land round Port Macquarie is good, and there is abundance of timber ; the river also (the Hastings) is of considerable size ; but the water over the bar is shallow, so that it cannot admit vessels of more than 100 tons burden.

From Port Macquarie to Moreton Bay, the entrance of which is in about latitude  $27^{\circ} 30'$ , the shore is irregular, and the surface much broken by hills, one of which, Mount Warning, in about latitude  $28^{\circ} 20'$ , rises to a considerable height. Some of the land, however, as seen from the sea, has a well-wooded and pleasant appearance. The hills are craggy and precipitous, but the low grounds have every appearance of fertility. Among other timber, the Norfolk pine (*Auracaria excelsa*) is found growing to a great height, which might be expected, as this part of the coast has the same latitude as Norfolk Island, and also the same hilly surface.

Moreton Bay is a very considerable expanse of water, defended from the sea by a long island, and a projecting headland on each side. There are eighteen feet water over the bar, and may be more in some places ; and though there be many banks in the bay, there are numerous channels between them. The extent of the bay from north to south is more than sixty miles ; and into the middle of the western side of it falls the Brisbane, the largest river that has yet been discovered running eastward in New Holland. The land on the shores of the bay, and in many places of the banks of the river, so far as they have been explored, is fertile ; so that, as this bay approaches much nearer to a tropical climate, it has been supposed that many productions which cannot be brought to maturity in the vicinity of Sydney might be matured here. The rocks in the interior, for a considerable part of the

distance here, are understood to be granite. Moreton Bay is the last inlet of consequence that has been explored on shore B, or to the southward of Breaksea Spit.

Breaksea Spit is a reef of broken coral and sand, extending about twenty miles north of a long and barren point, on the east side of which is Indian Head, the easternmost cape of New Holland. Within this point and the Spit there is Hervey's Bay, a considerable opening. This bay affords an anchorage; but the land at the head of it is low, though hills appear in the distance. The part on the east is barren, and there do not appear to be any considerable rivers.

The shore continues of the same character as on the west side of Hervey's Bay till Port Curtis, a little north of latitude  $24^{\circ}$ , be reached. Port Curtis is protected from the sea by Fairy Island, which is of considerable size, but barren, and with little or no fresh water. In general, indeed, the shores of the bay are not of the most promising nature; the trees are stunted, and the hills stony and barren. There is one mountain stream, the Boyne, upon the banks of which, a little into the interior, there are a few patches of fertile land, but they are not of any considerable extent. Northward of Port Curtis, and almost immediately under the tropic of Capricorn, there is another opening, Keppel's Bay, the head of which is connected by a channel with that of Port Curtis, but that channel is so shallow as to be dry at low water. The shores of both these open-

ings are in general so thickly beset with mangroves that no landing can be effected, and the ground, though it produces some trees and grass, is apparently so stony as not to be fit for agricultural purposes.

About  $1^{\circ}$  north of the tropic there are some deep bays; Port Bowen opening to the east, and Shoal-water Bay and Broad Sound opening to the north. These bays are of considerable dimensions, and the headlands by which they are divided from each other, are very rugged, and of uneven surface; but the shores of the bays are low and fringed by mangroves, and the water is very shallow.

From these bays northward to Cape Melville, in latitude about  $14^{\circ}$ , the land is high, and many remarkable promontories run out into the sea. In general the mountains are rocky and precipitous, though in some places there is a good deal of timber. From Melville Cape nearly the whole way to Cape York, the coast is without interest and without utility: it is generally low and sandy, broken only by occasional sand hills, and clothed with very little vegetation. Indeed, so far as discovery has yet been prosecuted, there is not much on the whole long line of shore C, from Breaksea Spit to the northern extremity of the country, calculated to attract the attention of the settler. Captain King, who examined the northern portion of this shore with more minuteness than any other navigator, gives it as his opinion that there is little to be sought for

in the last seven hundred miles. "For the greater part of this space," says he, "the sea beach was seen by me; but nothing like a river, or spring of any consequence, was observed. Whenever I did land, my visit was confined to the neighbourhood of the sea coast, and there the soil appeared to be shallow, and the timber small and stunted; but in some parts, particularly about the parallel of  $17^{\circ}$  of south latitude, the country was well wooded, and bore a verdant and pleasant appearance. To the northward of Endeavour River, in  $15^{\circ} 27' S.$ , all appearance of fertility ceases, and the remainder of the coast to the North Cape, which is about three hundred miles, is low, sandy, and barren; at this spot also the granite rocks ceased to appear."

The great Gulf of Carpentaria to the south-west of North Cape, has a very great extent of sea coast, not less than nine hundred miles, including the bays and windings. The shores are in general low, and the water almost every where shallow to the edge over blue mud or sand; the lee shores are covered with mangroves, behind which water is often seen. In some elevated places there are trees, often palms of considerable elevation, but barrenness is the general character of the surface. There is around the whole shore no appearance of any thing like a large river, or permanent rivulet; and the probability is that the country is in a great measure flooded with water in the rainy season, and burnt up with heat during the dry. Some of the bays, more particularly those

on the west side, of which there are a great many, afford good anchorage ; but there does not appear to be any inducement for vessels to visit the gulf. From the western termination of the Gulf of Carpentaria, which is at Cape Wessel, the north point of a group of islands, to Cape Van Diemen, which is also on an island, the whole line of the coast is low and sandy, and of course the country is in the dry season burnt up, and generally without fresh water. There are, however, some projecting headlands. In the intermediate space between the two capes, Captain King found a river, which flowed through low land of a very sterile character, the banks of it being on both sides thickly beset with mangroves ; and though the river was examined to the distance of forty miles from its confluence with the sea, there was no improvement in the land. Along this part of the coast, where the headlands could be ascended, there were ranges of wooded hills observable in the interior ; but the nature of the country by which these are separated is not known. Some parts of the islands that lie on the west part of this shore, are a little better, though in these too there is a want of water, and a general indication of sterility. On the south side of the bay that lies behind these islands, there are some small rivers ; but the tract through which they flow is flat and unproductive, and exhibits little vegetation, except a few clumps of palm trees, some of which are of considerable height, and stunted

bushes, with abundance of mangroves along the shores of the sea and the margins of the rivers. The grass upon most, if not all, of these shores, is a species of spinifex, not adapted for the food of cattle, and of so hard and pointed a description, as to render travelling over the rocks, in the fissures of which it is found, both a tedious and a disagreeable employment.

The north-east coast, from Cape Van Diemen to North-west Cape, is not much more promising. The eastern shore of the large open bay which lies immediately to the west of Cape Van Diemen, is low, the shore covered by thick mangroves, and the land behind parched, and in general covered only with salt and saline plants in the dry season, and probably in the rainy season it is wholly inundated. At the bottom of that bay, there is an inlet which penetrates a considerable way into the interior, and in the vicinity of which, there are some considerable elevations; but the whole is, in the dry season, arid and burnt up, and does not appear to be at present, or ever, susceptible of being rendered fit for the habitation and support of civilized man.

From this place, (about longitude  $128^{\circ}$  E.) to longitude  $125^{\circ}$ , the shore is rocky and precipitous, the rocky eminences being mostly of compact sandstone, and covered with a scanty and dry vegetation. These eminences are probably also scattered over the interior, and interspersed with low lands, which are flooded during the rainy season,

and burnt up and salt during the dry. In the dry season, the heat on this coast is excessive, as there is no water to cool the air by its evaporation. There are many bays and channels, in which the tide rises high, and the currents run with great rapidity ; and though rivers, or rather rills of fresh water have been met with in some of the inlets, it is by no means unlikely that there may be seasons, and perhaps times during every season, when all of them are dry. The remainder of this shore, as far as North-west Cape, so far as has been hitherto discovered, (for there are about 400 miles where the land has been seen only at intervals,) is low and sandy, thinly covered with stunted trees, and the water is in general shallow, and dangerous from the innumerable banks and reefs. Along this coast, where rocks do appear, they are generally, if not always, of sandstone, disposed in horizontal beds, the same as in the neighbourhood of Port Jackson. There are also some high cliffs and banks of indurated clay, and in many places the water, where it is evaporated, leaves a crust of tough blue clay upon the surface.

In general, the west coast is not of a better character. Indeed, though it differs in elevation at different places, there does not appear to be a single point of it worthy of being settled till the vicinity of Cape Leeuwin be arrived at. Shark's Bay is the only inlet that has been found in this dreary and uninhabitable coast ; and though the islands between it and the sea, may afford shelter for ships, and

fish can be had in abundance in the bay, there is nothing else to tempt any one to visit it.

So far as has been discovered, the best part of it, indeed the only part that seems at all adapted for cultivation, is the district on the banks of the Swan, or Black Swan River. Part of the rock at this place is limestone, which reposes upon toadstone, and is in many places covered by the same kind of sandstone which is found on so many other parts of the coast.

The south coast also is far from promising; and the remark that most generally applies to it is, that where there is fresh water, there does not appear to be much land capable of being cultivated; and where there appears to be land fit for cultivation, there is a want of fresh water.

This shore from Cape Leeuwin, a considerable way eastward, presents one alternation of sandy beaches, sand hills, and cliffs, with very scanty vegetation, and in some places the summits of high mountains appear in the interior. In the portion to which this character applies, there is only one bay of any consequence, King George's Sound, in about latitude  $35^{\circ}$ , longitude  $118^{\circ}$ , which is about the most southerly land to the west of the Bight, and therefore well situated for vessels that have to pass Bass's Straits, as the sound supplies both wood and water. But the inner harbours, which are of course the safest, also the most convenient for wooding and watering, do not admit,

with safety, vessels drawing more than thirteen or fourteen feet of water. From King George's Sound, eastward, the discoverers, by whom it has been very carefully examined, have found out little more than that it contains nothing worth seeking. For nearly the last five hundred miles westward of the Bight, this shore presents a very singular appearance. It consists of unbroken cliffs of strata, nearly horizontal, and for a considerable extent presenting a perpendicular front six hundred feet in height. This singular cliff consists of two distinct portions, the upper one of a brownish colour, and the other white ; the former being conjectured by Captain Flinders, to be calcareous, and the latter gritstone. From more recent arrangement of the strata observed at the Swan River, as well as from the position of the sandstone, as the uppermost rock in other parts, indeed, in all other parts of New Holland where it has been found,—it is by no means improbable that the order may be just the reverse of that stated by Captain Flinders. But whatever it may be, this singular formation for such an extent of coast in so large a country as New Holland, and where the principal elevation, where it has been traced, appears to lie in the direction of north and south, would lead to the supposition that there is something very peculiar in the interior of the country. From coasting along the shore, nothing; however, can be known, as those high and level cliffs conceal every thing but their own level line.

At the bottom of the great Bight, the character of the shore changes. At the first trending of the coast towards the south-east, there are sandy hills with little vegetation, that rise the one over the other as they recede into the interior; from thence to Wilson's Promontory, the line of the coast becomes more irregular, and the appearance of the land more diversified. Some places are well wooded, but in general, barrenness is the prevailing character, and every where there is a similar, or at least a great scarcity of fresh water. From longitude  $136^{\circ}$  to about longitude  $138^{\circ}$ , on this coast, there are two large and deep bays: Spencer's Gulf toward the west, and the Gulf of St. Vincent toward the east. These gulfs extend a great way into the interior, the head of Spencer's Gulf being more than one hundred miles to the north of the parallel of Port Jackson; but like most of the other gulfs that have been explored on the north-west and south of New Holland, they lead to nothing. Deep as they are, they receive no rivers, and hardly even any rills.

From those gulfs to the entrance of Bass's Strait, the sandy and barren character of the shore continues; and though the hummocks be sometimes of considerable elevation, they appear to be composed principally of sand.

On the northern shore of Bass's Strait, the land improves. At Cape Otway, the commencement of the straits from the west, a high and well wooded

land commences, and is found for a considerable extent; and where it does recede from the shore, and Port Phillip, and Western Port, the soil between it and the sea is of better quality. Still, though there be some good soil, there is a deficiency of fresh water.

From this summary of the reports of those who have examined the shores of New Holland, it appears that, with the exception of the middle part of the east coast, there is little in them from which even a guess at the nature and appearance of the interior can be drawn. From its comparatively small breadth, we may indeed conclude that the whole of the peninsula to the eastward of the Gulf of Carpentaria is an arid waste, more especially the narrow part of it towards Cape York. As for the rest of those shores, upon which no river equal in size to either of those that rise nearly opposite to each other in Van Diemen's Land is found, they seem to be barriers; but of what they are the barriers, they are so dissimilar to any other shores with which we are acquainted for enabling us to know or guess, even by that least satisfactory of all means, analogy.

### III. RIVERS AND MOUNTAINS.

If our knowledge of the shores of New Holland be not of the most satisfactory nature, yet it is perfect information, compared with what we know of the interior. In all the other continents, with, per-

haps, the exception of that part of Southern Africa, which lies to the northward of the territory of the Cape, there are some great features, indicated at the shores, by means of which we can form a hypothesis of the whole of the country, which wants only the filling up of the details from actual observation. The termination of a vast ridge of mountains, enables us to say, that here the water divides, and the courses of the streams are to opposite seas ; large rivers enable us to be certain, before we have embarked on the absolute survey, that here are valleys of ample dimensions ; or the smallness of the streams makes us sure that here the central elevation is at no great distance from the sea. But in New Holland, except in so far as actual observation has gone, and compared with the whole magnitude of the country, that is yet but a mere speck, we can speculate nothing. For full seven-eighths of the circumference, there is not one indication, save the continuity of the shore, that would lead us to conclude, that what we saw were any thing else than a portion of an island of less dimensions than many of those by which this regular continent is surrounded. Wilson's Promontory, which is of considerable elevation, and according to Messrs. Bass and Flinders, of hard granite, might at first be considered as the termination of a central ridge of mountains. But such is not the case : it is detached from the high land in the interior, not only by a low, flat sand, but nearly by a salt water lagoon ; so that it can be regarded as

nothing more than an insulated rock, which may at some time, and probably not at a time very remote, have stood detached in the sea. Cape Howe also stands among sandy shores; and though in the country to the south of Sydney, some of the high points on the coast be connected with the interior, yet none of them has the appearance of the beginning of a continuous ridge. The same is the case with the mountains that lie further north upon the east coast. It is the same with Cape York: that is not high itself, and the country to the south of it contains only hummocks of sand. The two points of the north coast, west of the Gulf of Carpentaria, are upon islands; and throughout the whole of that and the north-west coast, the hills that appear are evidently detached masses, and in many places they are, during the rainy season, insulated by the inundations. On the west coast, there are no better indications. North-west Cape is the termination of a sandy promontory, and the elevations between that and the Swan River appear to be merely hummocks running along the coast. Swan River itself, or Cape Leeuwin, give no more indication of an extent of either hill or valley. The south coast is still more puzzling. Where mountains appear, they seem to be insulated, and have not the least appearance of rising in elevation toward the centre of the country, as is usual in the other continents; then the five hundred miles of elevated coast in the very centre of the south, with the strata perfectly horizontal, is so

contrary to what is observed in other countries, that it darkens rather than explains. There are some instances in which the summits of the rocks and reefs that run out into the sea, determine the direction of the mountains, and thus afford a key to the internal geography of the country. But the reefs in the vicinity of New Holland are not of any such use. The reefs there have nothing to do with geology,—they are not the effects of those mighty causes, affecting the mass of the globe, which have girdled Europe with the Alps, Africa with the Atlas, Asia with the Himmaleh, and America with the Andes. They spring from no such convulsion of nature as those which have spotted the Atlantic with many of its isles, and stretched the chain of the Sunda islands from Sumatra to Timor. They are the work of means equally wonderful, but much more humble,—they are built quietly under the sea by countless myriads of little insects. As will be more particularly explained afterwards, the coral insects build their little habitations, one generation above the ruins of another, till, from the depth of hundreds of fathoms, they reach the surface. Then another ridge follows; the sea fills up the chasms with broken coral, sand, and other marine remains, after which the reef is manured and planted by the birds, and in time becomes an island.

Thus the theory of the geography of New Holland cannot proceed one step beyond the details that have been proved by experience; and though

observation, where it has been made, is just as good with respect to the local parts in New Holland, as to any other place, it bars all inference. Where theory would lead the geographer to look for a river, there is a thirsty sand; and where he would, from the analogy of other countries, expect a mountain, there is a marsh.

Of the whole 7,750 miles, which, by a rude calculation, form the shores of New Holland, the rivers that have been discovered, or that, to all appearance, are discoverable, running towards the sea, are confined to a very small portion, not exceeding five hundred miles; that is, from Shoal Haven in the south, to Moreton Bay in the north; and the sources of those rivers, where they have been traced, are so circuitous and crooked, that they are of little use in communicating an idea, either of the general character, or the general shape of the countries. These rivers are :

1. Shoal Water River, which has its source about thirty miles from the coast, and sixty southward of its mouth, and after a course of about one hundred miles, falls into Shoal Haven. The upper part of the course of that river appears to be a valley with a ridge of mountains on the east, and a still higher ridge on the west. This last stretches northward to elevated plains, from the summit of which the country may be traced northwards through the colony. The rivers that fall into Botany Bay and Port Jackson are of very trifling dimen- .

sions, and instead of rising in the central ridge of the colony, have two lower summits between their sources and that.

2. The Hawkesbury, which falls into Broken Bay, is the second river in order. It rises near Lake George, runs for some time parallel to Shoal Haven River, and its course is very circuitous and crooked : probably its length is about two hundred miles. It gets several names : at its source it is the Walandilly, then the Warragumba, next the Nepean, and lastly the Hawkesbury. Westward of this river, while its general course is northward, the Blue Mountains are abrupt on their eastern side, and the direction of the ridge is nearly north and south. Northward of the Hawkesbury, the Caermarthen Mountains stretch from the central chain eastward to the coast, and divide the districts watered by the Hawkesbury from those watered by—

3. Hunter's River. There are three principal branches of this river ; Paterson's from the west, and William's and Hunter's from the north. Their courses have not been so traced that they can be connected with the branches in the interior, that appear to flow towards them ; but it is by no means improbable that these three rivers will be found to divide the waters of a country about one hundred and twenty miles long from east to west, and one hundred broad from north to south, great part of which is cleared of wood, immediately fit for grazing, and very susceptible of tillage. Between the rivers

that probably flow eastward to Paterson's River, and those that flow westward to the Macquarie, there does not appear to be a definite ridge of mountains, but merely a summit level where the waters divide; and thus, in this part of the country, there is in all probability a valuable tract extending from the sea to between two hundred and three hundred miles.

4. The Hasting's River, which falls into Port Macquarie, is probably not so large as the former, taking all the three branches. It flows through a very mountainous country. Sea View Hill, at the distance of about fifty miles from the sea, where nearest, is about six thousand feet high, and is the most elevated peak hitherto measured in the country. Between this river and the former, there are several others of inferior dimensions. On the northward of the ridge, in the south side of which the several branches that are supposed to discharge themselves into the Paterson have their sources, many rivers have been discovered flowing in the opposite direction, some of which, even during the short portion of their probable courses that they have been traced, are of considerable magnitude. Of these, the ones farthest into the interior, and which may be supposed to be within the summit level, probably are lost in a continuation of the reedy marsh, beyond which the Macquarie could not be traced; and those that are on the east side of the summit, may discharge themselves into lagoons behind the sandy beaches on the coast that have not been completely

explored ; but, as has been said, hypothesis is of no use in the geography of New Holland.

5. The last, and, so far as it has been discovered, the largest river on the east coast is the Brisbane, which falls into Moreton Bay. In the opinion of Mr. Oxley, by whom this river was discovered, it issues from a lake, which receives a number of the streams in the interior : and from the soundings that he made in it, the depth is considerable for more than fifty miles inland. There is one argument in favour of the Brisbane's issuing from a lake, which the discoverer does not state, but which is very much in favour of his assertion, and that is, the small height of the marks of the inundations compared with those in the rivers farther to the south. In the Brisbane they were not above one-tenth of what is stated for some of the other rivers. The presence of a lake, or the flowing of all the branches of the river over a very flat country, is essential for the producing of this difference, and either of these circumstances, combined with the observed fertility of the soil, the abundance of timber, and the lower latitude and consequent better adaptation of the climate to the production of plants approaching those of a tropical character, render this one of the most interesting parts of the colony.

Of the rivers on the west side of the Blue Mountains, only two are known to their apparent termination—the Macquarie and the Lachlan, and they both terminate in marshes. The marsh in which

the Lachlan is lost is about three hundred miles to the west of the Blue Mountains, so that the slope of the country towards that side, is much less than towards the sea.

If it be true that the mountains behind the long, low beach between Wilson's Promontory and Cape Howe are granitic, and that the same kind of rock is found under the greenstone, or porphyry, or argillaceous schistus, or whatever may be the superincumbent formation, all the way to Endeavour River, about latitude  $15^{\circ}$ , where Captain King says that the granite ceases to be found, then it must be admitted that there are data for bringing the east part of New Holland,—say, the portion to the eastward of a line, drawn from somewhere near Wilson's Promontory to near the head of the Gulf of Carpentaria,—to as much resemblance to other countries as that a reasonable guess at least may be made at its general structure. The summit level sometimes formed by a ridge of mountains in the direction of north and south, and sometimes by the division of the western plain or valley from the eastern, between two transverse ridges of mountains (and the individual masses of granitic mountains, are very apt to run transverse the general direction of the chain), will lie from north to south at a distance from the sea varying from twenty to one hundred miles, and having a length of about one thousand six hundred miles. It will be observed in favour, one might almost say in proof, of this, that the whole of the

coast that corresponds to this is a watered coast. Many parts of it are no doubt dry and barren, partly from the accumulation of sea sand, or the driving back of the débris, sent down by the torrents, washed from its more tenacious particles, and partly from the porous nature of the verditure, and the accumulation of stones that have in many places been dashed from the cliffs by the floods and storms: still it is a watered country, not only along the shore, but along the west slope, from the summit as far as has been examined.

Of the remaining, and by far the larger portion of the island, nothing certain can be inferred from the appearance of the shores. So far as can be guessed at from the mere outline, the whole range from Endeavour River, round the north and west to Swan River, is useless and unprofitable; and the same observation applies to great part of the coast, round the south to Botany Bay. Still this is only conjecture; and as high land in the interior has been seen in coasting along the south, and as alternations of wooded eminences have been seen also in the north, the unpromising country may be only a narrow barrier drawn round better land within, and, till the country has been fairly traversed, no certain conclusion respecting it can be arrived at. This is a discovery which the English ought not to allow any other nation the credit of making. Begun at whatever point it might be, it would be an arduous undertaking; but though, from the nature of the

surface on the west and north, as well as from the disposition of the inhabitants, it could not well be undertaken by one individual, or by a small party, yet surely it is not impossible.

### VAN DIEMEN'S LAND.

The geographical features of Van Diemen's Land are much more easily traced than those of New Holland, because they are fewer and better defined, and because the interior of the country has been more traversed.

**SHORES, BAYS, &c.**—The shores of Van Diemen's Land are much more bold in their general character than those of New Holland; and at some points they afford scenery as grand as can be found in almost any part of the world. The north-east shore, near Cape Portland, and for a considerable distance to the west, consists of a sandy beach occasionally broken by rocky head-lands. But this beach continues only for a short distance from the water. Behind it there are gently rising hills, clothed with verdure, and having not a crown of thick forest or brushwood, but scattered trees of large growth. Over those green and fertile slopes, the mountains of the interior rear their summits high and bleak, and add to the grandeur of the scene, as well as give proof that those lower grounds upon which verdure appears, must be watered, and therefore susceptible of cultivation. This, it must be borne in mind, is

the sunny aspect of the island, because Van Diemen's Land is in the southern hemisphere, and without the tropic. As the entrance of the river Tamar is approached, the country becomes fertile down to the water's edge, and forms a pleasant contrast to the dry and sandy shores of New Holland. The estuary of the Tamar is navigable much farther into the interior than any of the rivers in New Holland. It winds considerably, and there are some banks in it, but the tide rises fifteen feet at Launceston, which is forty-three miles from the sea. The land on the banks of this river is in many places very good, and in general it is well wooded. When the river was first discovered, the number of black swans with which it was covered, was almost incredible; but since it became a regular resort for shipping, of course the number of those birds has diminished. To the westward of the Tamar (Port Dalrymple) the country continues, for a considerable way, to be gently sloping, and clothed with wood, and it is refreshed by as many little rivers flowing from the central hills as most countries of the same extent. At some places there are sands from the coast a little way inland, but never to such an extent as to give the country the character of sterility. The outline of this part of the shore is in some places very irregular; and one of the most conspicuous irregularities is Circular Head, a remarkable lump of elevated ground, which stretches almost twelve miles out into the sea, as if from the middle of a bay, is joined to

the land by a narrow isthmus, and has a small creek upon each side. To the westward of Circular Head the shore is low and sandy, and the more elevated country within is covered with heath. Heath is indeed the prevailing vegetation on a considerable part of the north-west of Van Diemen's Land. Between those heaths, the surface clothed with which is hilly, and the sandy shores, there is often tall and nearly impenetrable brushwood.

There are several islands on this part of the coast; and the numbers of birds seen at times is almost incredible. "There was," says Captain Flinders, "a stream (of sooty petrels) of from fifty to eighty yards in depth, and of three hundred yards or more in breadth; the birds were not scattered, but flying as compactly as a free movement of their wings seemed to allow; and during *a full hour and a half*, this stream of petrels continued to pass without interruption, at a rate little inferior to the swiftness of the pigeon. \* \* \* Taking the stream to have been fifty yards deep, and three hundred in breadth, and that it moved at the rate of thirty miles an hour, and allowing nine cubic yards of space to each bird, the number would amount to 151,500,000. The burrows required to lodge this quantity of birds would be 75,750,000; and allowing a square yard to each burrow, they would cover something more than  $18\frac{1}{2}$  geographic square miles of ground."\* This

\* Flinders, *Introduction*, p. 170.

fact is curious in itself; and it is farther of importance as tending to show that the sea-birds which have been mentioned as the principal architects of the supermarine portion of the new lands in the Australian seas, are so far from being inadequate to such a purpose, that they can effect it in much shorter time than those who are not aware of their numbers would be apt to believe.

Cape Grim, the north-east point of Van Diemen's Land, is high and bold, and of a very dark colour. The bold cliffs continue for seven or eight miles, and then are succeeded by a sandy shore, interspersed with small hills of the same material, but in the interior, running into elevated heathy grounds.

About seventy miles rather southward of Cape Grim, there is a narrow inlet which has not yet been explored, but which is considered to be the estuary of a considerable river, which rises to the south-east, and has a winding course of about eighty miles. Along this shore there is an alternation of sandy shores, and grassy lands, though those of the latter character are said to predominate.

About the middle of the west shore is situated Macquarie Harbour, by far the most extensive opening on this side of the island. The entrance is open towards the north-west, and is rather narrow; but the channel within is of considerable dimensions, and though the soil is not adapted for culture, timber is abundant, and is said to grow very rapidly.

From Macquarie Harbour, southward, the shore

assumes a different character. As far as Point Hibbs, it is of moderate elevation, and barren ; thence to Port Davey some places are better ; but the whole of it is rocky, and without those flat beaches which are of so frequent recurrence in Australia. Port Davey, which consists of a northern and an eastern branch, the latter of which is called Bathurst Harbour, is the last opening on the western shore ; which, thence to South-west Cape, is bold and precipitous, and presents, in many places, detached pyramidal rocks of considerable elevation. About Port Davey too, the rocks are of a very wild character, and appear to have been piled up in detached masses ; and, which adds to their irregular appearance, the fissures are filled with stunted trees and bushes.

South-west Cape, which extends out as a bold but narrow promontory, has a jagged appearance on the summit, and is easily known. Collecting the points that have been mentioned, it will be seen that the west coast is of a bolder character than the north, and that this boldness increases southward. It is the same with the east coast ; and the south coast, taking its general outline, is the most elevated of any. The same is the character of New Holland, with the exception of, probably, a part of the east ; and when that is taken in conjunction with the fact that the polar storms beat against the south of both islands, and that the eddies of the general current of tide have a tendency to deposit the sand and mud which they carry along on the north shores, another conclusion is

obtained towards explaining the appearance, and, in so far, the formation of those shores of both islands.

The south coast of Van Diemen's Land, is marked by four prominent head-lands : South-west Cape, already mentioned, South Cape, Tasman's Head, and Cape Pillar, and they pretty nearly divide the whole into three equal parts. The shore from South-west Cape to South Cape is irregular, but it is in many places high, and there is not any thing that can be called a good natural harbour. Between South Cape and Tasman's Head there is one opening into the interior, and between Tasman's Head and Cape Pillar, another of much more ample dimensions.

The rocks at South Cape are remarkably bold, and when the swell of the sea rolls against them from the whole expanse of the Antarctic Ocean, they have a very formidable appearance.

About sixteen miles to the eastward of South Cape, lies D'Entrecasteaux's Channel, between the mainland and Bruni Island. This channel is by far the safest entrance into the Derwent, as the long, and in general, high island protects it from the sea. There are many caves in this channel, both on the mainland side and the inland side. Of those on the mainland, the most important is Huon River, which reaches a considerable way into the interior, and has given name to the Hurn Pine (*Dacrydium*). The channel passes between the north end of Bruni Island, and a peninsula from the main, and thence,

under the name of the Derwent, reaches a considerable way above Hobart Town; but towards the commencement of fresh water, the channel is very much narrowed and shallowed by mud. Storm Bay lies on the east side of Bruni Island, is on the average about eighteen miles wide, communicates with the Derwent on its north-western extremity, and runs into a large inner bay at its north-eastern. The latter is of considerable extent, and Norfolk Bay, the south-eastern part of it, would afford safe anchorage for any fleet; but the entrance contains rocks, and is thus rather hazardous. Another branch extends far to the north, and gets the name of Coal River, from traces of that mineral being found in the adjoining country.

On the east side of Bruni Island there are many majestic columnar cliffs, which have obtained for the east point of the island the name of Fluted Cape. Adventure Bay, to the north of Fluted Cape, is spacious, but it does not afford shelter or good watering; so that, though it was the resort of the early navigators, it has, since the discovery of D'Entrecasteaux's Channel, been abandoned.

Cape Raoul, on the east of Storm Bay, is basaltic, and so is Cape Pillar, the extreme south-east point of the island. Cape Pillar is a very striking object; its general form is that of a bee-hive, but one side of it is broken into cliffs of basaltic columns, some of which reach almost to the summit; they are straight and well defined, and their appearance

is, upon the whole, grand and imposing. As is the case with the basaltic promontories in Europe, the base of Cape Pillar is surrounded by detached lines of short basaltic columns, as if it were surrounded by a pallisade. Those parts which are not columnar, appear to be in little terraces, probably with openings in the basaltic columns between, and they are covered, lightly, with small shrubs and other vegetation. The cape is, however, every where so steep that it has never been ascended, and the sea beats against it with such fury that it cannot be approached closely without danger. The land behind Cape Pillar, is not very productive, and opposite the head of Norfolk Bay, it is nearly detached by Pirate's Bay, which penetrates from the east coast to some distance. North of Pirate's Bay, the land continues to be very barren, after which there is a long bight in the coast, defended from the sea by some islands. The north part of this bight, extends northward behind a narrow peninsula of very high land, and gets the name of Oyster Bay. The land on the western shore of Oyster Bay, and to the south, abounds in pines well adapted for the lighter spars of vessels.

The coast from the peninsula at Oyster Bay, is of various elevation, but in general of a barren character; and when Cape Portland is approached, it subsides into the low sandy character of that part of the island.

## RIVERS AND MOUNTAINS.

From the notice that has been given of the shores, it might almost be inferred, that the island of Van Diemen's Land consists of two ridges, with a comparatively low country in the middle; and there is no doubt, though discovery has not connected all the points, that one ridge stretches in the direction of Cape Grim, and South Cape, traversing the country for an extent of about two hundred and thirty miles. This ridge divides the streams that run westward from those that fall into the Derwent and the Tamar; and the several ramifications of it, define the valleys of Gordon River at Macquarie Harbour, Arthur River, farther to the north, and the other streams. This ridge has not been accurately surveyed; but snow lies upon one of the peaks for some months of the year. The chain or ridge on the east side of the island, does not seem to be either so long or so regular. The mountains appear to extend in breadth in the north-eastern part, and be more narrow and interrupted toward the south; but the data are not sufficient for speaking with certainty.

Of the individual mountains in Van Diemen's Land, among the most elevated is Table Mountain, since termed Mount Wellington, which is situated to the west of Hobart Town, and on the south-west side of which the small river Huon has its source. This

mountain is about the height of Ben Nevis, in Scotland, that is, rather more than four thousand feet above the level of the sea ; and some account of the relative annual temperature of the two countries, may be estimated from the fact, that while snow is perpetual on Ben Nevis, even at a considerable distance below the summit, it lies on Mount Wellington only for about three-fourths of the year. The western mountains which extend northward from South Cape, were once, on account of their white appearance, supposed to be higher than Mount Wellington ; but a more careful examination has discovered, that the whiteness is that of the rocks, and that the highest peak in the chain does not exceed three thousand feet in elevation.

Near the west coast there are some conspicuous mountains, of which some are summits of the western chain, and others appear to be the abrupt terminations of lateral ridges that extend toward the coast. Of these, Mount De Witt, on the north side of Port Davey, Conical Mount, to the east of Macquarrie's Harbour, Hemskirk and Zeachan to the northward of that harbour ; and Mount Norfolk, on the south bank of the River Arthur, are the most conspicuous. In the chain to the eastward of the Derwent, which is in general represented as being rocky and precipitous, the most remarkable peaks are, Tasman's Peak, near the sources of the South Esk River, and Ben Lomond, near the sources of the North Esk, both to the north-eastward of Launceston.

The two principal rivers, the Tamar in the north, and the Derwent in the south, overlay each other; the remotest source of the Derwent being within fifty miles of the north coast, and that of the Macquarie, the most remote branch of the Tamar, being not more than forty miles from the tide-way in the Derwent and Coal Rivers. The country midway between the mouths of the two rivers, is not what can, strictly speaking, be called mountainous, though it is considerably elevated. One of the most remarkable of its characteristics is, that between the sources of the Macquarie, which runs to the Tamar, and those of the Jordan, that runs to the Derwent, there is a salt plain; in that plain there are three pools, or hollows, which are filled with water during the rainy season, but which are dried up by evaporation when the rains are over; and so strongly is the water in these hollows, and consequently the soil over which it flows and through which it percolates, impregnated with salt, that a considerable quantity is collected every season for domestic purposes.

The branches of the Derwent indicate an extensive valley or series of smaller valleys connected with that river. The breadth from the most easterly sources of the Jordan to the western mountains, is not less than eighty miles in a straight line; and the length from the remotest source to Hobart Town, is about one hundred and fifty; so that that river drains an extent of twelve thousand square miles of country,

and though there be occasional mountains, and unproductive places, the general character of that extensive district is fertility. At Hobart Town the valley of the Derwent may be said to terminate; for though the entrance be full forty miles further, before the open sea is reached, the heights connected with Mount Wellington close up the valley on the west, and the Coal River comes near to the Derwent on the east.

The fresh water which gets the name of the Derwent is not the principal branch, but one that comes from the western mountains; the one which is, as it were, the main stem of the river, is the Ouse, which rises about forty miles from the north coast and the same distance from the west. The Dee, the Derwent, and the Broad River, are the principal branches on the west side. Any extent of branch from that side in the lower part of the river is prevented by the near approach to the principal stream of the mountainous range that connects Mount Wellington with the great western chain.

About the parallel of  $42^{\circ}$  south, where on the average the waters of the Derwent and the Tamar are divided, there are numbers of lakes. The largest of these is Lake Arthur, estimated at about fifteen miles long and five broad. That lake is the source of the Shannon, the first branch that falls into the Ouse on the east side. This lake is inclosed on all sides, except the south, by bluff and rocky mountains, and it, as well as the smaller lakes in the vic-

nity, is literally covered with black swans and other aquatic birds. The plains between the lakes are also remarkably well stocked with kangaroos and emus; so that this division of the great rivers is the sporting country of Van Diemen's Land. The Clyde and the Jordan are the other principal branches of the Derwent on the east side. They both originate in lakes and marshes, and the plains through which they pass, more especially those on the Jordan, are very fertile and beautiful, in many places clear of timber, and immediately available as grazings.

The Macquarie, which has its sources near those of the Clyde and the Jordan, is the largest branch of the Tamar. The grounds through which it passes are in general rich, as are also those on the banks of the South Esk, which rises in the eastern mountains, near Tasman's Peak, and flows towards the north-west. The North Esk is the other principal branch of the Tamar: it joins the South Esk at Launceston, and is a romantic little river; but its course is too precipitous for its being available for the purposes of navigation.

From these hints some knowledge of the general appearance of Van Diemen's Land may be collected. The eastern and western shores are comparatively barren, though in some places, as at Macquarie's Harbour on the west, and Oyster Bay on the east, they afford abundance of timber. The southern shore is in many places bold,

and, towards the sea, that part of the island is also comparatively barren. Toward the eastern part, however, the entrances to the Derwent open up the fine plains and romantic valleys that are watered by the different branches of that river. The north coast, to the eastward of the Tamar, has not yet been explored ; but it is probable that the wooded hills, between the sandy shore and the eastern mountains, might be cultivated to advantage. The same may be said of a considerable part of the same coast, to the west of the Tamar, and also of a portion of the west coast, more especially to the north of Arthur River. The great central valley is, however, the valuable part of Van Diemen's Land ; and, from the comparatively short distance between the navigations of the Derwent and the Tamar, the general fertility of the soil, and the facility with which, should the wants of the population require it, an inland navigation could be carried across the island, this must be considered not only as the most attractive part of Van Diemen's Land ; but, in so far as mere geographical situation is concerned, one of the most eligible situations for a new nation on the face of the globe. Mere geographical position, surface, and even fertility, are not, however, all the elements which it is necessary to take into the account, in order to estimate the value of a country. There are the seas, with regard to commerce, the climate, the seasons, the meteorology,—the native productions,

mineral, vegetable, and animal, and the general adaptation of the country for the subsistence, the health, and the comfort of man. These will form the subject of the following chapters.

## CHAPTER II.

## SEAS, ISLANDS, REEFS, &amp;c.

IT is not only in the nature of the surface and the productions which that surface affords, that Australia differs from most other countries, and more especially from Europe: the very seas are as it were new, and their products are as singular as those of the land. Against the southern shores the ocean rolls unbroken from the Pole; on the south-east, it is hardly broken from the shores of America, distant by more than a full fourth of the circumference of the globe; the west side is exposed to the whole swell of the Indian Ocean; and the north has that eddying tide, which arises from the alternating monsoons of tropical countries. Thus, upon all the shores of Australia that are open to the sea, there is at times a very heavy swell and surf, and on some of them, that is almost continual. This surf, which rolls toward the land, is one of the causes of that accumulation of sand in the bays, and bars at the

entrances of the rivers, which are found so general in the country.

This is, indeed, the proper region of the world in which to behold and to admire the wonders of the deep, not merely in those sublime alternations of calm and tempest, which belong to the ocean, simply as water, and as left at rest, or worked into motion by the action of the winds; for the sea on the Australian shores, more especially on those within the tropics, absolutely teems with life, and wide as it is, it seems absolutely incumbered with its own living productions. Numerous descriptions of wholesome fish are found upon all the shores, and form the principal food of the native inhabitants. Toward the south, whales and seals, the latter both of the hairy species, and of that which affords the soft fur, are very abundant, so much so as to tempt adventurers from England. Nearer the Equator, turtle, both of the green and the hawksbill species, are plentiful; so that, upon the most desert coasts and islands, where the land does not offer one article of food—hardly so much as a solitary kangaroo or bird, or even a shrub to serve for fuel—the sea is exuberant in its riches.

The anchorage on the west coast in Shark's Bay, within Dirk Hartog's Island, is in as unpromising a land as can well be imagined; and yet the account of it given by Captain King is sufficient to tempt the mariner who passes that way to pay it a visit.

“ As an anchorage during the summer months,”

says Captain King, “ Dirk Hartog’s Road has every thing to recommend it, excepting the total absence of fresh water, which, according to the French, was not found in any part of Shark’s Bay. The anchorage is secure, and the bottom clear of rocks. There is also abundance of fish and turtle, and of the latter a ship might easily embark forty or fifty every day ; for they are very sluggish, and make no effort to escape, perhaps from knowing the impossibility of scrambling over the rocky barrier that fronts the shore, which is dry at half ebb.”

One of the most remarkable characteristics of the seas around Australia, is the numerous islands with which they are studded, and the small elevation of most of these, above the level of the sea. On the shores of Van Diemen’s Land, these islands are sometimes of a different character, being pyramids of rock, and sometimes presenting a columnar or basaltic appearance. On the south coast too, some of them partake of the high and cliffy nature of that coast, and also of its barrenness and want of water ; but toward the north-east, the north and the north-west, they are in general low, and seem at no very remote period to have been coral reefs, or even fathomless seas. A simple list of all those islands would occupy a large space, and an account of them would fill many volumes. Large and small, they are many thousands, and, according to the testimony of the most careful observers, their number is continually on the increase.

In glancing over a correct chart of the Australian seas, there are several places where this formation of islands is more than ordinarily conspicuous. Bass's Strait is full of them; and soundings are met with at no very great depth in all the channels. These islands indicate the continuation of a submarine ridge from the termination of the eastern mountains of Van Diemen's Land, at Cape Portland, to the high land of Wilson's Promontory in New Holland; and probably this is the only place at which New Holland can be traced as having a geological connexion with any other land, unless, indeed, we consider that there is a similar connexion between Cape Grim on the south entrance to Bass's Strait, and Cape Otway on the north of the west. Such a connexion, though not quite so continuous as the former, may be traced by Hunter's Isles on the Van Diemen coast, and King's Island, in the middle of the Channel. Hunter's Isles are in general barren; but on King's Island, which is of a larger size than any of the others, there is fresh water, and a very great variety of plants. The basis of both those groups of islands—the islands connecting Wilson's Promontory with the north-east of Van Diemen's Land, and those connecting Cape Otway with the north-west—is granite; as is the rock at Wilson's Promontory; and probably also the mountains that rise within the sandy interruption which occurs at the back of that great mass of stone. Granite is said to be also the prevailing rock at Cape Otway; and thus (if any.

guess could be hazarded on the subject), one would, from the structure of Van Diemen's Land, and of those two chains of islands, and the portions of the coast of New Holland toward which they are directed, be disposed to infer that there may be a similar formation in New Holland, at least for a considerable way northward. We have seen that there are two ridges of mountains, extending from south to north, in Van Diemen's Land ; we have traced their summits through Furneaux's, Kent's, and some smaller isles, to Wilson's Promontory, and through Hunter's Isles and King's Island to Cape Otway ; and we have farther seen, that, from Wilson's Promontory, an eastern range of mountains extends far north into New Holland ; hence, there is every reason to conclude that a western ridge extends northward from somewhere near Cape Otway. These circumstances have been noticed, because they are the only ones which, from our examination of the neighbouring islands, enable us even to guess at what may be the structure of the unknown parts of this singular country. In any other point of view, those islands are comparatively of little value ; they are, generally speaking, barren ; the shores of them are rather dangerous, and they are, accordingly, not much resorted to, except for the seal fishing. They abound in sea birds, and some of them, also, in small kangaroos and wombats ; but these are not of sufficient importance to give them any value in a mercantile point of view.

On the west coast there are few islands ; the only

ones worth noticing being Rottennest, off the Swan River, Dirk Hartog's, and Barren Island, off Shark's Bay, and Houtman's Albrohos, which is an extensive reef of rocks, rather than an island, lying about midway between these.

On the southern part of the east coast, from Wilson's Promontory to Breaksea Spit, there are also very few islands. Howe's Island and Ball's Pyramid lie eastward of Port Macquarie: and they, more especially Howe's Island, are remarkable objects, rising in basaltic columns from the sea; but they are four hundred miles from the shore of New Holland, and do not appear to have connexion with any other land. The other islands upon this coast generally lie close in with the shore, so much so, that many which have since been found to be islands, were, by Captain Cook, upon the first discovery of New South Wales, described as capes and headlands. These coast islands are generally connected with the main land by bars and banks, over which the water is very shallow; and it is by no means improbable that formerly many more of the irregular portions of this shore were insulated; as during the rainy season there is a constant accumulation of alluvial matter, which the sea drives back again toward the shore, and which of course settles wherever there is an eddy, as the water has a slower progress, in consequence of being shallow. The whole of the line of coast now mentioned, may be considered as

one that can with safety be approached, except when the wind blows strong towards the land.

Generally speaking, the west coast is equally safe, unless that, from the general direction of the winds in the Indian Ocean to the south of the tropic, it is for the greater part of the year a lee shore ; but on the south part of it the wind does not blow directly in shore, but toward the north-east. On that shore, the rocks of Cape Leeuwin, a long reef which extends off Cape Naturaliste to about one hundred miles further to the north, the shoals off the island of Rottennest, opposite Swan River, Houtman's Albrohos, at some distance off the shore, in latitude about  $29^{\circ}$ , are the chief dangers.

After passing Breaksea Spit, northwards, the character of the sea on each coast undergoes a very considerable change ; and there is an external ocean for general navigation, and an inner one for coasting trade : the former subject to the heavy swell of a great ocean, and the latter comparatively calm and safe, except from the reefs and shoals with which it abounds. This division of the sea is formed by the Great Barrier Reef, probably the most extensive coral formation any where to be met with. This vast accumulation begins at Breaksea Spit, the termination of which is coral, and with occasional interruptions, some of larger and some of smaller dimensions, extends, it may be said, the whole way to New Guinea.

Toward the southern part of the Barrier, its distance from the shore, with which it has no cross communication, varies from ninety to one hundred miles ; but northward it approaches nearer to the land. Toward the south, it occupies a breadth of from forty-five to fifty miles, but it becomes narrower toward the north. At Cape Tribulation, in about  $16^{\circ}$  latitude, the Barrier Reef closes in with the shore. For about 350 miles from the south opening, off Breaksea Spit, there is no passage through the barrier that can be at all trusted as safe. There are some openings, but they are very crooked, and a vessel cannot attempt them without the utmost danger ; and during the night, especially in calm weather, when the surf does not give warning of the detached reefs, the passage is almost certain destruction. The interior one, between the reef and the land, is, however, remarkably clear, except in the vicinity of the numerous little islands with which it is spotted. The depth, too, at a distance from those islands, is very uniform, though it becomes less as the distance of the reef from the shore narrows. There are soundings everywhere ; about sixty fathoms in the widest part, but shallowing to about half that depth, before the reef closes in with the land. The water in this inclosed portion is remarkably smooth, and thus can be navigated by small vessels with the greatest safety ; and considering that some part of the land which is washed by this tranquil sea, has more appearance of fertility and susceptibility of being cultivated, than

any other intertropical part of Australia that has yet been explored, this description of sea must, in the event of colonization, be of very considerable advantage to coasting trade. The communication with the ocean is not so easy; and thus under no circumstances could a colony be established on this part of the island, as a place of call for vessels from foreign parts. From the number of ships that have been wrecked on those reefs, it is desirable that there should be, somewhere in this inland sea, a station to which vessels could resort, either for shelter or to refit. But such a station could be accessible only by Breaksea Spit, and there, as has been said, only during the day.

When the wind is from the east, the transition from the sea within the reef, to the ocean without, is very striking; the windward, or outer margin of the reef, rises almost perpendicularly from an unfathomable depth, and thus the surf that breaks upon it is dreadful. Many parts of the rock rise above high water, have been filled up with sand, and begin to show some vegetation; but in the windward parts, the surf beats over those islets, so as to envelop them in salt foam during every storm.

Formidable as the Barrier Reef is on account of its extent, the intricacy of the channels between the different parts, the rapidity of the currents in those channels, and the re-action of the surf upon those to seaward, it is not the most formidable danger with which those who navigate the sea to the east-

ward of the tropical part of New Holland, have to contend. From Breaksea Spit towards New Caledonia, there are frequent reefs, which appear to have no connexion with the Great Barrier, or with the shore of any land ; nor is there less fathomable water, or any other indication by which a ship that has lost her reckoning can find them. New ones are also often seen ; so that the whole of this portion of the Pacific requires to be navigated with the greatest caution. Nor will it be till it has been crossed in every latitude and every longitude, that the chart can warn the mariner of all the dangers by which he is beset. Nor even then would it be altogether safe ; for such is supposed to be the rapidity with which those little insects build up their gigantic palaces in the deep, that a place on which there has been twenty or thirty fathoms, may, before a few years have elapsed, not have so many inches.

By day, however, there is comparatively little danger, as the reefs always give signs of their existence. The vast volume of water which is then in motion, when it suddenly shallows from the ocean depth, to a depth even much greater than is required for the largest ship, indicates by the rippling of the surface, the interruption which the submerged reef opposes to its mass. When the reef rises so near to the surface as to be peculiarly dangerous, its place is more conspicuously marked ; and without the Barrier—where the long swell of the ocean or the current flows smoothly—there

is nothing to fear. Wreck Reef, upon which Captain Flinders had the misfortune to be wrecked, in August, 1803, is about three hundred miles to the north-west of Breaksea Spit. A portion of that reef is dry, and afforded a resting place to the crews of the Porpoise and the Cato, until the adventurous Flinders went in a boat to Sydney to bring them deliverance. The following is the account which Captain Flinders gives of this incipient island:—  
“ The length of the bank is about one hundred and fifty fathoms, by fifty in breadth, and the general elevation three or four feet above the level of ordinary high water ; it consists of sand and pieces of coral, thrown up by the waves and eddy tides upon a patch of reef five or six miles in circuit ; and being nearly in the middle of the patch, the sea does no more, even in a gale, than send a light spray over the bank, sufficient, however, to prevent the growth of any other than a few diminutive salt plants.” On this bank the eggs of sea fowl were observed ; and there cannot be the least doubt that, after the causes by which it has been formed have operated for some time, the bank will become an island, and palms and other stately vegetables succeed to the saline plants noticed by Captain Flinders.

As that adventurous and intelligent navigator purposely sought the dangers of the Great Barrier Reef, in order that he might point them out to future navigators, he had better opportunities of observing their nature, and was enabled to draw more certain

conclusions respecting their formation than any other individual. On that account his general remarks are of much value ; and they are the more so in consequence of his having been accompanied by Brown, and other gentlemen eminently skilled in Natural History. The place where the observation was made was on the east coast, about latitude  $20^{\circ}$ , and at the distance of about sixty miles from the land.

“ I went upon the reef,” says Captain Flinders, “ with a party of the gentlemen, and the water being very clear round the edges, a new creation as it was to us, but imitative of the old, was presented to our view. We had wheat sheaves, mushrooms, stags’ horns, cabbage leaves, and a variety of other forms, glittering under water with vivid tints of every shade betwixt green, purple, brown, and white, equalling in beauty and excelling in grandeur the most favourite *parterre* of the curious florist. These were different species of coral or fungus, growing, as it were, out of the solid rock, and each had its peculiar form and shade of colouring ; but, while contemplating the richness of the scene, we could not long forget with what destruction it was pregnant.

“ Different corals, in a dead state, converted into a solid mass, of a dull white colour, composed the whole stone of the reef. The negro-heads (black points which had been previously seen when the other parts of the reef were covered by the flood-tide), were lumps that stood higher than the

rest ; and being generally dry, were blackened by the weather ; but, even in these, the forms of the different corals, and some shells, were distinguishable. The edges of the reef, but particularly the outside (that towards the ocean) where the sea broke, were the highest parts. Within these were pools and holes containing sponges, and sea eggs, and cucumbers, and many enormous cockles (*chama gigas*) were scattered upon different parts of the reef. At low water this cockle seems mostly to lie half open, but frequently closes with much noise, and the water within the shells then spouts up in a stream three or four feet high. It was from this noise and spouting of the water that we discovered them ; for, in other respects, they were hardly to be distinguished from the coral rock."

The " sea eggs" here mentioned by Captain Flinders, were species of *echinus*, a univalve shell-fish of a globular form, and beset with *tenaculæ* in the form of spines ; and the "cucumbers" were a species of large slug (*holothuria*) called by the French *béche de mer*, and by the Chinese *trepang*. The latter people esteem it much as an article of food, boiling it down into soup, which, though not very palatable to Europeans, is regarded by the Chinese as having very strengthening qualities. Large quantities of it are fished for on the north coast of New Holland, chiefly by the Malays, and for the Chinese market, the particulars of which will be mentioned hereafter.

Anchorage near these coral reefs is attended with many perils; as the vessel is not only apt to swing upon points which have not been discovered, more especially if the anchor is let go at high water, but the sharp ridges of the coral bottoms, chafe and cut the cables; and the anchor is apt to drag, either by the weak mass of a thin ridge on which it catches, or the parting of the fluke upon a strong one.

Though the sea generally, within the reefs, has comparatively smooth water, yet when the wind is strong at south-east, the channel, near Cape Tribulation, where the reefs approach the shore, is far from safe, and requires the greatest caution, which indeed is necessary during the whole of the rude passage from Cape Tribulation to the extremity of New Holland. One of the most valuable species of the spermaceti whale—the hump-backed whale—(*Cachalot Trumpo of La Cepede*,) is described as being very plentiful in the sea within the barrier. This is the whale that produces the greatest quantity of the crystallized fat, known in commerce by the name of Spermaceti, and the oil which it yields is also purer than that of the common Greenland whale. But it is a much more fierce and active animal, and the pursuit of it among the reefs cannot be conducted to success, without considerable hazard. The cachalots, or spermaceti whales, have a much greater range of food than the common whale; they have teeth, of which that animal is destitute; and thus they feed

not only upon *medusæ* and other *mollusca*, but upon fishes of considerable magnitude, and even upon the shark. Large as they are, the "living water," for it is literally alive, in the sea alluded to, finds them ample subsistence.

Torre's Strait is one mass of islands, shoals, and reefs, among which the navigation is at all times difficult, and with a contrary wind impracticable. The water is no where deep. Toward the narrowest part of the strait, it is seldom more than twelve or fourteen fathoms, and often not above half as much. The bottom is every where seen, and in clear weather and with a vertical sun, the traversing of those channels is a novel scene, even to those who are familiar with the sea. The heat and light are excessive, and are, the latter especially, increased by the reflection of the light-coloured bottom ; then the water is crowded with *mollusca*, some of which are perfectly transparent, and others tinted of various colours. There are also fish of all sizes, shapes, and colours, with sea snakes of large dimensions and glowing lustre, whose motions are as easily traced as if they were seen in the air. Here the shark may be seen, darting along with open mouth, and the other fishes swimming off in all directions ; and there the turtle raising its unwieldy weight of shell, or making for the shores of the islands, to escape its enemies, or to deposit its eggs in the holes of the sand. Shell-fish are also very abundant ; and the chama attains a size far exceed-

ing those mentioned by Captain Flinders. The sea-weeds, corals, corallines, and sponges, may also be easily traced ; and, indeed, were it not for the intolerable heat which must be encountered, the mid-day view of the deep in those seas, discloses the wonders of that element, in a far more astonishing and satisfactory manner than if it were dried up, and the traveller admitted to walk over the bottom.

In passing Half-way Island to the east of the straits, Captain Flinders had a better opportunity of observing the progress of the coral reefs than when he landed on the Barrier upon the east coast. "This island," says he, "is scarcely more than a mile in circumference, but appears to be increasing both in elevation and extent. At no very distant period of time, it was one of those banks produced by the washing up of sand and broken coral, of which most reefs afford instances, and those in Torre's Strait a great many. These banks are in different stages of progress ; some, like this, are become islands, but not yet habitable ; some are above high water mark, but destitute of vegetation ; whilst others are overflowed with every returning tide."

"It seems to me," continues Captain Flinders, "that when the animalcules which form the corals at the bottom of the ocean, cease to live, their structures adhere to each other, by virtue either of the glutinous remains within, or of some property in salt water ; and the interstices being gradually filled up with sand and broken pieces of coral washed by the

sea, which also adhere, a mass of rock is at length formed. Future races of these animalcules erect their habitations upon the rising bank, and die in their turn, to increase, but principally to elevate this monument of their wonderful labours. The care taken to work perpendicularly in the early stages, would mark a surprising instinct in these diminutive creatures. Their wall of coral, for the most part in situations where the winds are constant, being arrived at the surface, affords a shelter, to the leeward of which their infant colonies may be safely sent forth ; and to this their instinctive foresight it seems to be owing, that the windward of a reef exposed to the open sea is generally, if not always, the highest part, and rises almost perpendicular, sometimes from the depth of two hundred, and perhaps many more, fathoms. To be constantly covered with water seems necessary to the existence of the animalcules, for they do not work, except upon holes in the reef, beyond low-water mark ; but the coral sand, and other broken fragments thrown up by the sea, adhere to the rock, and form a solid mass with it, as high as the common tides reach. That elevation surpassed, the future remnants, being rarely covered, lose their adhesive property ; and remaining in a loose state, form what is usually called a *key* upon the top of the reef. The new bank is not long in being visited by sea-birds ; salt plants take root upon it, and a soil begins to be formed ; a cocoa-nut, or the drupe of a *Pandanus* is thrown on shore ; land-

birds visit it, and deposit the seeds of shrubs and trees; every high tide, and still more, every gale, adds something to the bank; the form of an island is gradually assumed; and last of all comes man to take possession."

This beautiful description is given by a man who knew more of coral reefs than, perhaps, any other man that ever sailed: he had no particular fancy in philosophy to support, and he had abundant leisure, during his long, cruel, and even absurd detention at Mauritius, to reflect maturely on what he had observed. His opinion is therefore a safe one, in enabling at least a probable notion being obtained of the way in which those portions of the main land of Australia, and those islands on its shores, which do not follow the usual laws of geology, have been formed.

That all the islands in Torre's Strait are of insect construction cannot be the case, because many of them contain higher land than could be produced by such means. The insect does not work higher than the water, and the tide cannot elevate sand and broken coral higher than the rise of the surf. When the accumulated matter is loose sand, there is indeed no limit to the height to which it may be raised by eddying winds. In this way the sand hummocks that are seen on the west coast of Australia, and which give their own sterile character to the coast, may, may must, have been formed, and are therefore to be regarded as a sea produc-

tion, confined to the coast, and affording no evidence of the character of the interior ; and the recent discovery of fertile land at Swan River, is a confirmation of this opinion.

Looking back at the portions of the reefs on the east coast from Breaksea Spit, where they commence, to near Cape Tribulation, where they approach the shore, and from thence northward to Murray's Isles, about one hundred and twenty miles to the eastward of Cape York, it is hardly possible to avoid seeing a large portion of surface in the progress of being added to that part of New Holland. When the line of these reefs closes in, whether the vacant spaces shall remain as lagoons of salt water, or be filled up by the débris of the interior, carried down by the floods, it is very obvious that without some volcanic action that shall consolidate the accumulated strata, and raise them into hills, there will be the same flat country as is met with on the eastern side of the Gulf of Carpentaria, and great part of the north-west coast. On such a land as this would form, there could be no rivers under any climate ; and under a tropical climate, where the year is divided into a rainy season and a season of drought, the same alternation of parching and flooding that are found in the flat intertropical parts of Australia, would of necessity take place.

Thus, though the shores in many parts of Australia, form no clue to the nature of the interior, the operations which are now going on in the adjoining

seas, afford a very satisfactory explanation of the shores.

The sea in Torre's Strait, and again between Cape Van Diemen, and the Island of Timor, exhibits the same rapid formation of coral reefs; the Gulf of Carpentaria forms, on the east and south sides, rather an exception, at least in as far as the formation of new land is concerned. It is low and muddy, and from what is known of it, it appears that the coral insect works only in clear water, and against a current; the Barrier Reef is opposed to the roll of the whole Pacific; and the greatest coral reef in the Atlantic, the Bahama Islands, is opposed to the powerful current which issues from the Gulf of Mexico, between Florida and the Island of Cuba.

On the north and north-west coasts the low coral islands are mixed with others of a more bold and rocky character, much in the same way that the low shores, covered with mangroves, alternate with the rocky shores of sandstone, schistus, or limestone over granite. The larger islands in the west part of the Gulf of Carpentaria, have this character, and probably it extends to a considerable part of the peninsular land lying between the west side of the Gulf of Carpentaria, and the Bight to the southward of Cape Van Diemen; this corresponds in longitude with the extensive granite cliff described by Captain Flinders on the south coast, and points to the conclusion that there *may* be a western ridge of primitive mountains, stretching across the country from

south to north, considerably to the westward of the marsh, in which the waters of the Lachlan River were found to be diffused, if not dissipated.

Those clusters of islands, numerous as they are, are of value chiefly as they are to be avoided as dangers, or sought for as shelter by the mariner, or as they may form the *nuclei* of new lands. Few of them are well adapted for settlements; though, when the colony is further extended, and traffic along the coast becomes more abundant, it would be convenient to have stations at various points. Port Dundas, on Melville Island, appears to be well chosen as a resting-place for vessels that pass Torre's Strait, or otherwise navigate the sea to the south-eastward of Timor; and probably there might be a settlement made on the east coast, considerably within the tropic, which has become the more desirable, because the passage within the northern reefs has been found much safer for the strait than that without: the reefs in the open sea being less known, and in all probability less permanent in their form, and the currents and swell much more violent.

In order to complete this glance at the Australian seas, it only remains to point out the times and directions of the prevailing winds, and the set of the more remarkable currents; and in doing this, it will be best to follow the order in which the shores have already been noticed; but to shorten this as much as possible, making the causes of the phenomena at the same time, in so far appear, it will be necessary

again to revert to the position which Australia holds on the globe, and the general laws of atmospheric phenomena in that situation. About one-third of the length of New Holland in latitude, lies within the southern tropic, and is of course affected by the tropical currents, both of the atmosphere and the ocean : the northern portion of that lies not very far from the south-east of Asia, where the tropical winds are by local causes changed into alternating monsoons, and it must of course be in so far affected by these ; and the remaining part, without the tropic, must be affected by the winds and currents of the temperate zones. In addition to these circumstances, arising from geographical situation, there are others : the dryness of the surface at certain times of the year, and (the probability of) the low lands being at certain seasons covered with water.

In the tropical regions the apparent motion of the vertical sun westward, occasioned by the real motion of the earth in the opposite direction, produces a westerly motion both in the tides of the sea and the winds in the atmosphere. The latter is the trade wind, which extends beyond the tropics into both hemispheres, and shifts northerly and southerly with the declination of the sun, extending farthest into each hemisphere during its summer. These winds tend more to the southward as the latitude increases, and without the tropic, they give place to other winds.

In the southern hemisphere, where a great portion

of the circumference of the globe is sea, the extra-tropical wind is much more regular than in the northern hemisphere, though in both, the prevailing wind blows in the opposite direction to the trade. The constancy of the south-west wind on the south and west of New Holland, produces an eastward current in the ocean, which is felt all along the south shore.

A difference of temperature between two places is the cause why the wind blows from the one to the other. It blows uniformly to the warmer place, because the air is rarefied there, and ascends: and in latitudes not more distant from the equator than New Holland, it may be considered that heat is generally, if not invariably, the cause of the regular winds. Now, when the surface of New Holland becomes dry, the vegetation withered, and the heat of the naked and sandy soil as high as  $120^{\circ}$  of Fahrenheit, which it generally has on the north coast, and probably for a considerable way into the interior, during the dry season, one can easily perceive that the rarefaction of the air over it, and the consequent tendency of the wind to blow toward it, must be very great. There is one circumstance, however, which tends to lessen the current of the wind from the north even to this very warm land. The sea there is shallow, the water often smooth, and the rays of the sun are reflected from the glassy surface and the light-coloured bottom, as from mirrors; so that, though the water of the sea does not

become so warm, the air over it is nearly as much heated as that over the land ; and thus, instead of running towards the land, it obeys the general atmospheric current over the sea, or, in great heat, and with a clear sun, it stagnates into a dead calm. This must be understood only, however, as applying to the open or mid channel, between New Holland on the south, and Timor and the islands eastward of Timor, on the north ; for immediately on the shores of all countries, and especially tropical ones, that get very dry during the warm season, there are sea and land breezes, the former blowing towards the land, when that becomes heated by the daily action of the sun, and the latter setting towards the sea, when, from the absence of the sun, the land becomes comparatively cool. When it is stated that the wind blows from the cold surface towards the warm, it must not be considered that this, in all cases, relates to the absolute temperature, for it only relates to a change in one of the surfaces, without a corresponding change in the other. Were that not the case, there never would be any land breeze while the surface of the land continued dry, as that dry surface is not cooled down to the temperature of the sea. But when the relative heat of one place becomes less in proportion than that of another, the equilibrium between the atmosphere in the two places is destroyed ; and the wind continues to blow from that which has been relatively cooled, until the equilibrium be restored, or until a new cause begins to operate. These

general remarks will serve to explain the cause of the prevailing winds upon the Australian coasts, without particular explanations in the notice of each ; they will also, when we come to notice the climate and seasons on the land, show the general reasons of their character and succession.

On the south-east coast, from Cape Howe to Breaksea Spit, the prevailing wind during the summer half year, which is from the end of September to the beginning of April, is from the south-east. It is not uniform, however, along the whole line of the coast, because to the southward it is more out of the influence of tropical action, and from Port Jackson southward, the land is narrow, and the weather on the one coast is apt to be affected by that on the other. Accordingly there are often gales from the south and west, and also from the north-east and north, which are accompanied by thunder and lightning and heavy rains. Sometimes too, a dry and burning wind sets in from the north-west, which parches the vegetation, and makes the heat almost insupportable, the thermometer during these winds often rising above  $100^{\circ}$ . These hot winds are generally followed by violent gusts from the southern quarter, which are as cold, and in less than half an hour the thermometer will sink from the temperature of an Indian summer, to that of an European spring. When the south-east wind is steady and moderate, the weather is fine, and the coast is refreshed by a regular succession of sea and

land breezes, which are at the same time very favourable for navigation, both northward and southward. In the winter season, when the land begins to cool, the westerly winds, from the general current on the south coast, are most prevalent; but as the south-east winds of summer are apt to be interrupted by hot dry winds from the north-west, the west-winds of the winter are apt to be interrupted by gales from the eastern quarter, which are accompanied by heavy rains. Thus there are no certain dry and rainy seasons on the coast, from Cape Howe to Breaksea Spit; though the nearer that the latter point is approached, the approximation to tropical seasons becomes the more striking.

As might be expected from the position of the great reefs, and New Guinea, and the other islands to the north, the current of the water upon this coast is southward. The great roll of the Pacific, within the tropic, gets a motion westward by the joint action of the tides, and the south-east trade wind; and, being checked in its progress by the reefs and islands, it turns southward in the direction of the open sea, to the south of Van Diemen's Land, where it meets with the easterly wind and currents that prevail in the open sea, without the tropics, and so returns toward Cape Horn on the coast of America. This current, which, clear of the headlands and islands, flows southward at the rate of about two miles an hour, facilitates the passage of vessels south, when the wind is in that quarter;

while the eddies setting northward, between the points, are of equal advantage to coasters in proceeding northward, when the sea and land breezes close in shore are suspended. The action of this current, is one of the reasons why the surf beats so strongly to seaward of the reefs; and though it renders these more dangerous to a vessel not having wind or sea room, it gives warning of the danger when it is farther off.

At Breaksea Spit, the winds and current change; the former to a more tropical, and the latter to a milder character. There the south-east trade wind is pretty regular for three quarters of the year; and as it is softened by passing over the comparatively still water within the reefs, the sea and land breezes are very regular. In the winter, that is, during June, July, and August, there are often gales on this coast from the north-east, which are accompanied by heavy rains; and even when the south-east blows fresh, there are often thick fogs. The current on this part of the coast is towards Torre's Strait, or in the opposite direction to that from Breaksea Spit southward, but it is very gentle, and tends little either to help or to hinder navigation, which within the reefs, and with a proper knowledge of the islands and shoals, which are very numerous, may be easily made northward, by the trade wind, or the sea and land breezes, unless during the season when gales set in from the north-east.

Torre's Strait is a difficult navigation, though

Captain King found it much more safe as well as expeditious, when approached from within the reefs than when from without. The greatest danger of the reefs appears to be in those to seaward, where the current is strong, and new ones, or, at least, such as have not been previously seen, are frequently met with.

On the north coast, from Torre's Strait to Cape Van Diemen, the monsoons are felt in the open channel. The south-east blows from March or April to November, and the weather is generally fine. During the remainder of the year, the north-west monsoon blows, and brings thunder, lightning, and very heavy rains; and as that is the season when the sun is nearly vertical, and the heat the greatest, it will readily be supposed that the coast, more especially those parts of it where there is much of the surface flooded, must be very unhealthy. It is true that there are sea and land breezes on the shore; but these are strong only during the south-east or dry monsoon, as the moistness of the surface, which is the cause of the unhealthiness, also brings it nearer to the same consistency with the surface of the sea, and of course lessens the tendency of the atmosphere to shift from the one to the other.

On this coast, the current to the eastward of Torre's Strait sets north-west, being that part of the great current of the ocean which is not turned southward by the exterior reefs; but as the outlet for it in the strait is confined by the great number of islands and reefs, it does not set so strongly as

the current toward the south. On approaching the strait, it is a little more rapid; but on reaching the sea to the westward of the strait, the current from the east subsides, and the motion of the water appears to depend on that of the wind,—changing with the monsoons.

Torre's Strait is advantageous only as a passage *from* the east coast of New Holland, where it shortens the distance both to India and China. Eastward, it would hardly be practicable, when both the wind and the current are from the east; and the strength of the north-west monsoon in December, January, and February, is the season for rain and squally weather; so that during these months, the passage both ways may be considered as impeded. A westward passage may then, however, be made through Bass's Strait on the south, which answers best for an eastward one at the seasons when Torre's Strait can be passed westward, and an eastward passage can be made round Van Diemen's Land at all times of the year.

April, May, and June, appear to be the most agreeable months for visiting the north coast of New Holland. The east monsoon is then in its vigour; and yet the dry weather has not continued so long as to burn up the vegetation. The night is calm and serene; the land wind comes from the southward at day-break, and freshens for a part of the morning, but dies away at noon, and is then succeeded by the sea wind, which begins at east, but shifts to the north-

east, and dies away at night. At this time, the east wind is regular and steady at a distance from the land. As the monsoon advances, and the land becomes parched, the heat increases, the sea and land breezes fall off, and the weather becomes calm and exceedingly sultry ; and this dry heat is in the summer months followed with the rainy and unhealthy weather that has already been mentioned.

The west part of the Gulf of Carpentaria, is, generally speaking, an exception. That gulf is of sufficient width to affect the weather upon its shores ; and accordingly, the eastern monsoon, which is a sea wind, brings the rainy season upon that shore, while the western, which is a land wind, brings the dry weather. In this the general law is followed ; for in India, the rainy season occurs on the Malabar coast with the south-west monsoon from the Indian Ocean, and on the coast of Coromandel with the north-east monsoon from the Bay of Bengal.

Though the north-west coast be wholly within the tropic, the winds there have not so much of the tropical character. A great portion of land lies between it and the east trade wind, and it trends southward out of the direction of the eastern monsoon. Accordingly, the eastern monsoon, which begins in April, seldom lasts longer than the end of June ; and while it does last, it comes in gusts rather than a steady wind ; and there are sea and land breezes and calms, during the former of which a passage may be made either eastward or

westward. The winds upon this long line of coast are not every where the same: they have most of the regular tropical character on the north-east, and it becomes less and less decided as North-west Cape is approached. The monsoon in summer (December and January) blows from the west, varying at sometimes a point or two to the north, and at others a point or two to the south. About the Cape this seems to be pretty constant, but it is often interrupted by land winds along the coast. Toward the end of February the west winds die away, and the weather gets variable, with squalls and heavy rains, and is very unwholesome. The current upon this coast usually takes the general direction of the wind.

On the west coast, except occasional land winds, the general winds are from between the north-west and south, but generally toward the west; and near Cape Leeuwin they are chiefly from the south-west, though in summer they are often from the north-west during the night, while a ground swell rolls in from the south-west at most seasons of the year.

This general motion of the winds and swell of the sea, causes the current also to come from the south-west; and it divides into two parts at the Cape, one setting eastward along the south coast, and another northward along the west. The first of these currents continues all the way to the western entrance of Bass's Strait; but though the mass of water that sets eastward to the strait be considerable, it does not

continue to run rapidly there, as it is met and neutralized by the southward current on the eastern shore ; and accordingly, in the strait, the surface current is regulated by the winds.

On this south coast, the wind is westerly during the greater part of the year ; and easterly only during the latter end of summer, in January, February, and March. Those east winds are felt most perceptibly near the extremities of the coast, in Bass's Strait and toward King George's Sound ; and during their continuance a passage westward may be made through that strait without difficulty.

From these notices of the seasons and directions of the prevailing winds, and the set of the different currents, it is easy to infer which are the proper times for coming to or departing from the shores of New Holland, in whichever direction the other termination of the voyage may lie.

Around Van Diemen's Land, the winds are generally from the west and south ; and the ports of that island, more especially the Derwent, are accessible at all seasons. The gales are often strong, and the sea rolls in mountains against the southern capes ; but when once D'Entrecasteaux's Channel is entered, all is safe. Very violent gusts indeed often take place in the neighbourhood of Mount Wellington, but they are seldom of long duration.

From the fact that the prevailing winds, on the whole line of coast from near Northwest Cape to the bottom of the Great Bight in the south, are almost

at all seasons from the sea, one would be led to conclude that there is in the internal part of New Holland, some permanent cause of heat and rarefaction of the air; and it is difficult to perceive what that can be, other than a parched surface, upon which little or no rain falls, and where, in consequence, cold is not produced by evaporation; but this, though a plausible one, is only a conjecture, and may not be verified by observation.

In the tides upon the Australian shores there is nothing very remarkable. Those on the east coasts are low, and the flood follows the direction of the current which runs parallel to the shore. South of Breaksea Spit, the average rise of the spring tides is not much more than six feet; and towards the north it is probably not so much. There are points, however, where currents meet that have higher tides, and there are some where there is high water only once in twenty-four hours.

## CHAPTER III.

## CLIMATE, SOIL, AND APPEARANCE OF THE COUNTRY.

As some of these points have been already partially noticed, and as others can be with more propriety detailed when we come to describe the topography of the colonies, the general observations may be very brief. Indeed, in a country having such a range of latitude as New Holland, and having, under the same latitude, the rainy seasons at opposite times of the year, it is not very easy to give a general account of the climate; and throughout so great a part of its extent our knowledge of the soil and appearance of the country is so confined to the mere line of the coast, that there are not materials for a general description, even though the particulars were more easily generalized than they appear to be.

The climate on the north coast, and as far into the interior as the low lands, which are subject to be flooded, may extend, must be unhealthy, the more so that the rains occur during the most powerful action of the sun. This character, in all probability, belongs to it throughout the whole extent from North-west Cape to Cape York, including the shores of the Gulf of Carpentaria. In passing round the north point of Dirk Hartog's Island, in Shark's Bay, Captain King found the heat oppressive, and the wind from the land of the same dry and parching character as that which sometimes blows at Sydney. When the same navigator had rounded the North-west Cape, and got under the lee of the land, "the air, before of a pleasant and moderate temperature, became so heated as to produce a scorching sensation." This was in February, corresponding to August in the northern hemisphere ; and the temperature which the captain had left was that produced by the constant winds from the sea upon the west coast. Toward the middle of the north-west coast, the same navigator found the temperature (also during February) to be  $120^{\circ}$  in the shade at noon, while on the land it was  $10^{\circ}$  higher. This is greater than the common maximum temperature of the warm season, either in the West or the East Indies. In February also, Captain Flinders found the average temperature on board ship, in the west part of the Gulf of Carpentaria,  $85^{\circ}$  ; and it was hotter on shore. One of his crew having exposed himself for a short time

to the sun without his hat, was struck with a *coup de soleil*, and died the same evening. It is probable that the part of this coast that lies toward Melville Island, and possibly that island itself, may have the most healthy climate of any on this side of the country, because they are most in the line of the monsoons; but the observations hitherto made are too few for warranting any other conclusions than these,—that the climate is sultry and unwholesome, and not more inviting than the soil.

That portion of the intertropical part of the east coast, which appears to be the most promising in point of fertility, is, probably, also most salubrious. The rainy season there occurs with the other monsoon, and the land is high and diversified, and, except in the lagoons, not so subject to be flooded. With regard to this coast we are, however, in the same condition as to the former,—there is a want of meteorological observations; and though the difference of the rainy monsoon, and the greater elevation of the surface, be presumptions in favour of a better climate, they are not evidence.

The general course of the winds on the west and south-west being from the sea, it is natural to suppose that the temperature upon that coast should be more moderate. The only part of it at which the temperature is of much consequence, is at the Swan River, because that is the only part at which a settlement can apparently be formed. From the general direction of the winds, the climate there should

be moderate, though probably more uniformly rainy than any other in the island. Captain Baudin, who was there in the winter, found the weather stormy, and the temperature from  $63^{\circ}$  to  $70^{\circ}$ , while at anchor in the road. Captain Stirling was there with the Success frigate in autumn (April), and found the extremes  $84^{\circ}$  and  $59^{\circ}$ , and the mean, of course, about  $72^{\circ}$ . The summer winds in that part of the country are chiefly from the north-east, which must produce rain, as the air charged with moisture in the tropical regions, is carried into a colder latitude, by which its power of retaining humidity is diminished ; and the fact of such rain having fallen, or of the soil being of a kind better adapted for the retaining of moisture than most parts on the other coasts, was proved by the abundance of fresh water which, in autumn, Captain Stirling found in the soil. All the circumstances of that part of the coast, point to the conclusion that, if the quantity of fertile land answer the hopes that are formed of it, it will, in time, and that by no means a long time, be one of the most valuable, if not the most valuable settlement in Australia.

King George's Sound lies so near to Swan River, that there must be a considerable resemblance in their climates, though the latter may partake in so far of that of the coast further to the east. The climate of the vast range of coast from King George's Sound to near Botany Bay, is not much known ; and it is not an inquiry of much importance, as,

so far as is known, there seem few stations upon it very eligible for settlements.

Though, as has been mentioned, there often be great and rapid changes in the temperature of the part of the east coast without the tropic ; and though there be a considerable range between both the summer and the winter, and the coast lands and the mountains ; the climate must be regarded, on the whole, as healthy, not only in places that are naturally clear of timber, and in those that have been cleared and cultivated, but in the woods, where the absence of underwood admits of a free circulation of air between the trees.

From a register of the weather kept at Sydney, during the years 1821 and 1822, it appears that the greatest temperature on the 7th of February, was,  $77^{\circ}$  at six in the morning,  $89^{\circ}$  at noon, and  $84^{\circ}$  at eight at night ; and the lowest, on the 14th of July,  $48^{\circ}$ ,  $50^{\circ}$  and  $51^{\circ}$ , at the same hours respectively. Another register, kept at Paramatta, gives the lowest temperature, (in June)  $26^{\circ}$ , and the highest, (in January)  $106^{\circ}$ , which gives a seasonal range of  $80^{\circ}$ . On the Blue Mountains, it freezes at night for several months, and there are falls of snow, which are unknown on the coast, though hail be not uncommon. As is the case in other countries, hail falls toward the summer months, in large and irregular masses. The rapid and great changes of temperature that take place when the wind changes from

north-west to south-east, are the causes of this formation of hail.

The following abstract of the state of the weather, taken daily for eleven months, at six in the morning, at noon, and at eight in the evening, will give some idea of the climate at Sydney, with regard to dryness and moisture.

#### STATE OF ATMOSPHERE AT SYDNEY.

Months.	Clear.			Cloudy or Foggy.			Rain.		
	6 a.m.	12. m.	8 p.m.	6 a.m.	12 m.	8 p.m.	6 a.m.	12 m.	8 p.m.
June .....	13	8	16	14	16	7	3	6	7
July .....	12	10	16	14	17	8	5	4	7
August .....	8	8	16	19	17	6	4	6	9
September ...	1	7	11	22	18	12	7	5	7
October .....	15	11	16	15	16	11	1	4	4
November ...	14	16	19	13	3	5	3	6	6
December ...	11	25	12	19	5	13	1	1	6
January .....	3	27	7	27	2	19	1	2	5
February .....	1	18	6	16	2	14	11	8	8
March .....	1	24	3	25	2	23	5	5	5
April .....	—	14	2	22	6	24	8	10	4
Total in 334 days. }	79	163	124	206	109	142	49	57	68

## STATEMENT FOR EACH MONTH.

Months.	Mornings.	Noons.	Evening.
June .....	Clear..... 13 Cloudy .... 14 Rain ..... 3 — 30	Clear..... 8 Cloudy .... 16 Rain ..... 6 — 30	Clear..... 16 Cloudy .... 7 Rain ..... 7 — 30
July .....	Clear..... 12 Cloudy .... 14 Rain ..... 5 — 31	Clear..... 10 Cloudy .... 17 Rain ..... 4 — 31	Clear..... 16 Cloudy .... 8 Rain ..... 7 — 31
August .....	Clear..... 8 Cloudy .... 19 Rain ..... 4 — 31	Clear..... 8 Cloudy .... 17 Rain ..... 6 — 31	Clear..... 16 Cloudy .... 6 Rain ..... 9 — 31
September .....	Clear..... 1 Cloudy .... 22 Rain ..... 7 — 30	Clear..... 7 Cloudy .... 18 Rain ..... 5 — 39	Clear..... 11 Cloudy .... 12 Rain ..... 7 — 30
October .....	Clear..... 15 Cloudy .... 15 Rain ..... 1 — 31	Clear..... 11 Cloudy .... 16 Rain ..... 4 — 31	Clear..... 13 Cloudy .... 11 Rain ..... 4 — 31
November .....	Clear..... 14 Cloudy .... 13 Rain ..... 3 — 30	Clear..... 16 Cloudy .... 8 Rain ..... 6 — 30	Clear..... 19 Cloudy .... 5 Rain ..... 6 — 30
December .....	Clear..... 11 Cloudy .... 19 Rain ..... 1 — 31	Clear..... 25 Cloudy .... 5 Rain ..... 1 — 31	Clear..... 12 Cloudy .... 13 Rain ..... 6 — 31
January .....	Clear..... 3 Cloudy .... 27 Rain ..... 1 — 31	Clear..... 27 Cloudy .... 2 Rain ..... 2 — 31	Clear..... 7 Cloudy .... 19 Rain ..... 5 — 31
February .....	Clear..... 1 Cloudy .... 16 Rain ..... 11 — 28	Clear..... 18 Cloudy .... 2 Rain ..... 8 — 28	Clear..... 6 Cloudy .... 14 Rain ..... 8 — 26
March .....	Clear..... 1 Cloudy .... 25 Rain ..... 5 — 31	Clear..... 24 Cloudy .... 2 Rain ..... 5 — 31	Clear..... 3 Cloudy .... 23 Rain ..... 5 — 31
April .....	Clear..... — Cloudy .... 22 Rain ..... 8 — 30	Clear..... 11 Cloudy .... 6 Rain ..... 10 — 30	Clear..... 2 Cloudy .... 24 Rain ..... 4 — 30

The statements in those tables will afford a sort of approximation to the weather at Sydney ; but as they are only for one year, and as the seasons are variable, they cannot be taken as an average. According to them, the seasons are most generally clear in the warm months, December and January ; and as the season advances, the mornings become foggy, until in April, which corresponds to October in Europe, there is not one clear morning. The evidence as to the quantity of rain is not complete ; but far as it goes, January, Febuary, and March, appear to be the most rainy months, as we have seen statements for them of falls of about six, seven, and eight inches respectively. November seems also rainy as combined with December, and September, as compared with October. In April, though the fog and cloudy weather be very frequent, more especially in the mornings and evenings, it does not appear that there is much rain.

From an account of the quantity of rain at Paramatta, about 100 feet above the level of the sea, it appears to be nearly the same with that at Kinfauns, on the banks of the Tay in Perthshire, at twenty feet above the level, that is, about twenty-six inches ; and as Paramatta and Kinfauns are somewhat similar in their situations, being on estuaries at nearly the same distance from the sea, and not very far from mountains, we may conclude that the quantity of rain that falls in the neighbourhood of Sydney, does not differ much from, though it appears rather to exceed,

that which falls in Britain. But the quantity that falls upon low and warm places near the sea, is much less than that which falls, not only upon high and cold mountains, but upon elevated grounds near the sea coast. The warmer that the low land is, the greater is the difference, because the warm air in part dissolves and holds in suspension, the rain that falls through it ; and thus, of a rain-cloud that is blown from the mountain to the low land, the air over that land may absorb a part, and return it to fall in rain upon the mountain. At Kinfauns there are two rain guages, very near each other in horizontal distance, but differing in elevation 580 feet ; and in an average of five years, the elevated one showed that forty-one inches of rain had fallen annually, while the lower one showed only twenty-five, being nearly three-fifths more for the higher. What the actual quantity that falls upon the high lands in New South Wales, which are at no very great distance from the sea, may be, must be determined by observation ; but judging from that which falls at Paramatta, and from the elevation at which an increase takes place in other countries that are similarly situated, eighty or even one hundred inches in the year, is probably not too high an estimate. In moisture, therefore, which is one of the grand elements of fertility, New South Wales is, according to this estimate, far from deficient ; and it is most abundantly supplied during the time when it is favourable to vegetation.

The next element of fertility is temperature ; and

the following are the mean temperatures of the months, at the same elevation as that stated for the rain :

Degrees.	Degrees.	Degrees.
May..... 60	September.... 62	January..... 73
June..... 53	October..... 68	February .... 68
July..... 51	November.... 72	March ..... 60
August.... 56	December.... 74	April..... 59

June and July are the only months in which the temperature is below freezing. This information does not indeed extend over a sufficient period, and there may be monthly and even occasional variations, just as there are in other countries that have variable climates ; but still it may be assumed as a general fact, that lands in the latitude of Sydney will remain verdant during the whole year ; and that the average temperature of the several months, is equal to that which is accounted a good agricultural season in this country. The late Professor Playfair, who seldom advanced on any steps but facts, assumed  $40^{\circ}$  as the lowest temperature at which grain will germinate, and  $56^{\circ}$  as the average of a good vegetating season. But the average annual temperature of the low lands in the parallel of Sydney is  $63^{\circ}$ , or leaving out the two months in which there is frost during the night, it is  $65^{\circ}$ , an annual temperature of  $3^{\circ}$  on the whole, and  $5^{\circ}$  on the ten months, higher than that at Rome, and corresponding with that of Spain, Italy, Grecce, and Asia Minor, countries which are considered as the Paradise of the old continent. Thus, in the second element of fertility, New South Wales is equal to the most esteemed parts of the old world. Whatever

will come to maturity in the countries that have been mentioned, must come to maturity in Sydney, if there be soil and skilful cultivation. The great portion of the year during which the average temperature is above that at which grain ripens, gives to the farmer in New South Wales a much more extensive range of useful season than can be obtained in places that have a higher latitude; while the greater general temperature must admit such a range in elevation, that probably the highest plains may become the most valuable corn countries, while those that lie lower will produce the rich fruits of the South of Europe, and of China and Japan.

The soil of the country under consideration is in some means an inference from what has been already stated. If a country has an annual average temperature of  $63^{\circ}$ , and is supplied with abundance of moisture, the soil must be fertile, unless there be an apparent preventing cause,—unless it be so precipitous, as that the rain shall wash away the vegetation as soon as it begins to form; so sandy as that the moisture shall be instantly absorbed; or so impregnated with saline substances, as to prevent the growth of any but saline plants. In judging of the soil of New South Wales, we must therefore look at the substratum, because all above the surface is favourable to vegetation.

The information is not complete; but so far as it goes, it certainly does not warrant the assertion that the subsoil is as favourable as the heat and moisture,

though in it there are considerable varieties, even within the range of the inhabited part of the colony. The coast land is chiefly upon sandstone, often of a very loose texture, and with perpendicular fissures, by which the moisture is absorbed. It is also often covered with masses of the same stone, which the weather decomposes, and scatters over the surface. Such a soil is naturally dry and sterile ; and in the warmer parts of New Holland, where several dry months occur in succession, this description of soil is little better than a desert. In New South Wales it is destitute of running water ; but it is covered with plants, and upon digging into it, water is found, which has been arrested in its progress by the retentive strata below. From the sandstone to the mountains, in part of which that stone again appears, the surface rests upon clay slate, often of a very soft consistency, but generally impenetrable by water. The surface of this part of the country is a good deal diversified, and it is covered with vegetation ; but it contains no springs : the sloping lands are washed by the rains, and where the surface subsides into a level, it is apt to be marshy. This is rather an untoward soil for the agriculturist,—as it cannot easily be either drained or irrigated ; and the grass which it naturally produces is hard, wirey, and unfit for pasture. Such a soil would be greatly improved by the application of lime ; but that is not easily attainable in the district. There are some of the strata that contain a portion of lime, but it is

so mixed with sand and clay, that it is of little or no use. Thus the only naturally good soil in the vicinity of Sydney is that which is alluvial, formed by the vegetable remains brought down by the rains and floods ; and the unfavourable nature of the other soil assists in the production of alluvion. Whether washed from a single slope into the hollow at its base, or deposited by a river, on the levels along its channel, the alluvial soil of New South Wales is deep and rich. The very circumstances that collect it there, tend however at times to make it unsafe ; as the rains, which fall heavily, being unable to penetrate the earth and lodge in it, are, by the sloping surface, precipitated into the rivers, and occasion floods which, while they are uncertain in the month or even the year of their occurrence, rise to heights unparalleled in any other country,—except perhaps in some of the torrents in Southern Africa, which, when the colony was attempted to be established there, swept not only crops and cattle, but houses and land into the sea. The floods in New South Wales are not quite so violent : they spare the land and add to its fertility ; but rising sometimes to the height of nearly one hundred feet, they are fatal to whatever of crop or habitation may be within their range. The colonists, since they penetrated beyond the Blue Mountains and learned at least something of the meteorology of the country within, have found out the season, if not the year, of those floods ; and thus they have been enabled to guard against

them : first, by erecting their habitations higher than the flood reaches ; and secondly, by removing the produce from the low land before the season at which the flood may be expected.

When the country was first settled on the banks of the Hawkesbury, the people placed their houses upon the rich low flat ; but, in March 1799, a flood came suddenly upon them, and, rising to the height of fifty feet, swept away their property, and rendered their escape with their lives a matter of difficulty. The summer that year had been so dry, to seaward of the Blue Mountains, that the grass was parched up, the woods on fire, and the colony in an alarm of famine, from quite another element than that by the fury of which they were overtaken. These inundations generally happen in the month of March, and they have been known to rise ninety feet, to which height one reached in 1806, and was so destructive, that the price of bread rose to two shillings and sixpence per pound.

Various causes seem to conspire to the formation of those floods : the steepness of the mountains ; the crooked courses of the rivers ; the form of their channels ; which consist of a series of wide pools, connected by deep and narrow passes, between projecting points of rock ; the impermeable nature of the soil, rendered more so by drought, and the violence of the rains. Those rains fall chiefly upon the mountains ; and sometimes, if not always, they fall at the end of a long tract of dry weather upon the coast, and, indeed, before the weather there has broken. They come with

westerly winds, and the air upon which they are wafted receives its humidity, either from the sea toward Port Lincoln and the Great Bight, or from the central lake or marsh—if there be any such—that receives the waters of the Lachlan, the Macquarie, and the other streams, that flow westward from the mountains. That the principal winds on the mountains are from the west, is proved by the inclination given to the trees; and that those winds are violent at some seasons of the year, is proved by the fact that the trees, even of the most close and firm timber, are rent and shaken internally, as is the case with those in the stormy regions of the Cape of Good Hope. That those heavy rains which produce the floods, fall upon the mountains only, and not generally upon the country to the westward of them, is proved by the fact that Mr. Oxley met with floods both in the Lachlan and the Macquarie, of which the state of the country and the river, farther down, gave no sign.

We have, therefore, a satisfactory solution of the cause of the floods; and it also throws some light upon the unexplored country to the westward. The air, which is charged with those torrents of rain, must receive the water by the common process of evaporation from some moist surface, because that is the only way in which air can be saturated with humidity. Thus, between the place where it receives, and that where it parts with its humidity, there can be no land so cold, and therefore so elevated, as the Blue Mountains; because, if there were, it is a general law in

meteorology that the air would discharge its moisture upon that. Therefore, to account for what has actually been observed—the clouds from the west breaking upon those mountains, the existence of another and an equally elevated ridge, between them and the sea, or some inland sea, lake, or morass, situated at a small elevation, and consequently warm, is impossible; while a low and marshy country, such as that which was seen near the termination of the Lachlan, is precisely that which would be most favourable to the production of the appearances that have been observed.

Now, a period of uncommon drought in the country toward the coast, is the best calculated of any to bring on those rains upon the mountains that occasion the floods in the eastern rivers. The rarefaction of the air, occasioned by the arid surface of the country toward the coast, must produce in the more cold and dense air over the mountains, a constant current eastward; and that, by being heated over the surface of the coast country, must have its evaporative power increased, and thus aggravate the drought. The air to the westward of the mountains will move eastward, to supply the place of that which moves toward the dry country on the coast; and, rising there into a higher, and consequently a colder region, it must be cooled below the point of its retention of humidity, and the inevitable consequence is rain. This, too, although upon the sea coast there were a wind from the east, bringing over the coast land air saturated with moisture from the sea, the wind from

the sea, even though charged with all the humidity that it could bear at the temperature of the sea, would become absolutely a drying wind, over a country parched by a continued heat of more than  $100^{\circ}$ ; and therefore could deposit no rain until it came to land having a much lower temperature. It might produce clouds, because the heating influence of the surface of the earth extends only to a limited height in the atmosphere; but when those clouds descended so near to the surface as to be within the sphere of its action, they would be again dissolved, as is the case even in much colder countries, during long drought and heat,—where we find that clouds are again and again formed and pass away, before any rain makes its appearance.

According to the accounts, those floods rise to the greatest height in the rivers about the parallel of Sydney, and become less towards the north, though the rivers there, more especially the Brisbane, be larger than the Hawkesbury. This would lead to the conclusion, that the water which forms those floods, is raised by evaporation from the sea on the south-west, and not from any internal lake or marsh of considerable magnitude. And though the discoverers have concluded that the low lands on the northern shores are flooded during the rainy season, there is no absolute evidence of the height to which the flood rises there, or even of the fact of there being a general flood at all; nor if there were, is any central portion of water necessary for its formation.

The rains on that coast come with the monsoon from the north-west, and the ground is then, to a considerable extent, parched, dry, and nearly destitute of water. Of course it is not in a state for absorbing moisture, neither is it such as to cause air from the sea to part with its humidity. Therefore, in the intertropical parts of New Holland, the rains must fall first upon a surface at some distance into the interior ; nor is it till the low land on the coast has been to some extent cooled by the inundation from this, that rain there can be general. To lessen the chance of inundations or floods in the river courses toward the coast, the operation demanded is to cool the surface of the coast land during the summer ; and the most obvious way of doing that, in the colony at least, is by cultivation, and having the ground covered with vegetables. This, it must be admitted, would be but a slow cure, but it is the only one ; and the personal inducements to the putting of it in practice, are much greater than the mere mitigation of the floods.

To the south-west of Sydney, near the mountains, the soil improves. The character of the rock alters there, and there is greenstone upon the east side, and limestone, at some distance from the mountains, upon the west. Both of those rocks are more retentive of moisture than the sandstone on the coast, more permeable by it than the clay slate of the intermediate country, and their débris forms a better vegetable soil than either ; so that those parts of the

country form by far the best grazings : and when an extensive population in their neighbourhood should occasion a demand, there is no question that they would become also the most valuable lands for the plough.

The natural appearance of Australia in every place where there is soil and moisture, gives evidence how well the climate is adapted to forward the growth of vegetables. The name of Botany Bay, conferred upon the comparatively barren coast where Cook and Banks first landed, is a permanent proof of the rich field of vegetable novelties which the latter met with there. The fact is, that wherever there is a particle of soil, in the midst of a desert of sand and salt, in the crevice of a rock, on the surface of a reef just emerged from the sea, or on the trunk of a fallen tree, there grows a plant of some kind or other. It is often a useless, and sometimes an ungainly one, but still it grows, and grows rapidly ; and though the dry season often parches, and the natives add to the desolation by burning the country during the drought, the rainy season clothes it with a new creation. In those situations where the soil appears to be nothing but an accumulation of stones, wood is found, often in abundance, of large dimensions, and growing rapidly. The soil at Sydney, it has been mentioned, is far from being of the best quality ; and yet when the colony first landed, they found it wooded down to the water's edge, and the foundation of the nascent capital was prepared by the hatchet.

In that part of the island, however, the forests are not of that tangled character which is met with in many new countries. There is brushwood only where lofty trees will not grow; and where the latter are, as the trunks are comparatively tall and slender, with no lateral branches, except near the top, and not very many there, the forests are open, and may be passed through in all directions. The trees are wholly evergreens, which gives a sort of monotonous air to the seasons. They have, however, in most of the species of *eucalyptus* (by far the most prevailing tree) the singular property of having a deciduous bark, which is either hanging from the stem in shreds, or gone; and the tree, till the verdure at top be observed, has all the gloomy character of those blasted trunks which are sometimes found in the forests of other countries. Forests of this kind have but little beauty; but they admit a free circulation of the air, and they are easily cleared. Steep banks, and bold rocks are another characteristic in the scenery of New South Wales. Of these, the banks of the Wingeecarabee river, a branch of the Nepean, to the south-west of Sydney, afford among the most magnificent specimens. These rocky banks are of vast elevation, composed of light coloured stone, piled perpendicularly in huge masses, which with their perpendicular and horizontal fissures, resemble the architecture of giants. Between them and the river there is often a low, green bank,

strewed here and there with huge fragments of the cliff, and thick with *eucalypti*, which, with their straight white stems, and their continuous green leaves above, appear as a colonnade to this singular erection. The top is covered with another green bank, upon which a fresh line of the same trees, but of smaller growth, present the form of a ballustrade, while here and there, one of more ample dimensions, or sometimes a *casurina*, with its different form, has the appearance of a statue. In many places there is one precipice rising over another, with a green bank and clustering trees between ; and as those precipices are at intervals worked into deep and dark caverns, the whole has a most unusual, and certainly a sublime effect. At a few points, too, the distant mountains come in in the back ground, and present a landscape, different in character, but certainly not inferior in grandeur, to those of the most celebrated of picturesque lands.

Excepting the flooded banks of the rivers, and some of the table lands among the mountains, there is little of New South Wales that can be considered as flat, until the lower parts of the Macquarie and the Lachlan be reached on the west side of the mountains. Nor is there only that gradual rise of the country which is almost as monotonous as a dead level. There are slopes and acclivities in every direction ; and, unless where they stand boldly out in bare rocks, the mountains are clothed with vegetation to their very summits ; and the grass in

the higher valleys is often of much better appearance and quality than upon the low grounds, where it is covered by marshes or by the shade of the forests.

Along with this diversity in the form of the surface, there is a diversity in its appearance. Forest timber, brushwood, and grass, are not formed into zones according to their elevation, as in countries of more uniform surface and severe climate. It is the soil chiefly that determines the native vegetation of Australia; and as that is continually varying with the form and the exposure of the surface, the native pastures come much nearer to landscape gardening than any thing that is met with in almost any other country. There is a grove here, a lawn there, a shrubbery in another place, and in another still, a natural wall of the light coloured stone appears at the openings of the foliage, as if it were part of the enclosure of a garden. Sometimes these are all upon so small a scale, that they would suit a labourer's cottage; at others, they would answer for a villa; and sometimes there is a vast extent, with a few clumps and scattered trees, as a domain ample enough for the most splendid palace. On the elevated country to the north-east of Bathurst, and that for a very considerable extent, a stranger would find some difficulty in persuading himself that he were in a country, not only which the hand of man had not touched to improve it, but where there was not one fixed, and hardly even a wandering inha-

bitant... As connected with another country at the **Antipodes**, and to a people who, by supplying their wants from every portion of the globe, cannot think of comfort, and hardly of existence, without commercial intercourse, these delightful regions lie under the disadvantage of being approached with difficulty ; but to those who would be content with the produce of a fertile soil, and the enjoyment of a genial climate, in their own locality few places are more inviting than this.

Such is the general aspect of the unimproved country upon the eastern coast of New Holland—the only one that has, to any extent, been examined. Wherever there is elevated ground, permanence of fresh water, and such a position of the surface as prevents the vegetable mould from being washed away, fields fit, or easily made fit, for grazing, have been formed ; and though both westward and north-westward of Port Jackson, the country has been found subsiding into reedy and useless marshes, there is no evidence to shew that those marshes are continuous, even from the Lachlan to the Macquarie, as the ridge that lies between the courses of those rivers may reach westward, and be joined to other ridges.

To the settlement of individual portions that are fertile, there appears to be no obstacle : the grand desideratum is inland communication ; and really, though there be no certainty, there is very strong presumptive evidence that that will never be supplied, but that the communication between the eligible

parts of the coasts must continue to be made by sea. In as far, however, as the subsistence and comfort of the individual settlers are concerned, that want of general internal intercourse is not a matter of much consequence. The only thing that it prevents is the formation of one great nation who can co-operate for one single purpose at all points of the vast island ; and as, in the mean time, local improvement is of far more consequence than this internal intercourse and co-operation, the inhabitants of the various places will be, for centuries to come, much better employed in improving their own fields, than in attempting to form inland routes from Bathurst to Moreton Bay, or from Sydney to the Swan River.

The climate of Van Diemen's Land differs from that which must be taken as the average of New Holland, by having none of the tropical character. If the summer heat in New South Wales be taken at about  $90^{\circ}$ , that of Van Diemen's Land cannot be rated much above  $70^{\circ}$ . As compared with the sea coast of New South Wales, the winter in Van Diemen's Land is probably colder in proportion. The surface of the country is more diversified : it lies nearer to the storms of the antarctic ocean, and the weather is in consequence more variable—approaches more nearly to the character of that of England. But there are none of those burning winds from the north-west, to which the inhabitants about Sydney are exposed, and which, followed, as they frequently are, by winds equally cold from the op-

posite quarter, render the climate there uncomfortable, if not unhealthy. Another thing: though the temperature be lower than in New South Wales, and consequently not adapted for the same kind of produce, it suits better with the common grain of England; and as, upon an island of so comparatively small dimensions, and with a very varied surface, the wind from almost every point of the compass must be, to some extent, charged with rain, there is a comparative exemption from those failures of the harvest through drought that are but too often felt in New South Wales. The rains in Van Diemen's Land either do not fall with the same violence as in the other colony, or the different nature of the soil and surface does not project them so rapidly into the sea: thus, though some of the low lands are under water during the winter months, the alarming inundations which swell the rivers in New South Wales are unknown. Van Diemen's Land is also much better watered, though, in consequence of the bars, rapids, and other interruptions, the rivers are not very available for inland navigation.

The surface of Van Diemen's Land bears some resemblance to that of New South Wales, only the scenery is bolder and the grass is not so completely dried up in the summer months. The rocks, which are in many places of green-stone or of basalt, have a more picturesque character than the flat sand-stone strata of near Sydney. The woods, consisting

chiefly of *eucalyptus*, present the same range of white trunks, without underwood, supporting a canopy of dark foliage. The plains, however, are often much more open, and the wooded hills and slopes have still more the character of landscape gardening. Hills that are covered with verdure interspersed with wood, often terminate in abrupt precipices ; and while the banks of a river are for a considerable extent verdant, sloping down to the water's edge, an immense pile of rocks, running backward to the hills, and covered with trees, will occasionally diversify the scene. The neighbourhood of the central lakes that lie between the sources of the Derwent and the Tamar, are not so barren as those in the vicinity of the lakes to the south-west of Sydney ; and though in many places towards the coast the soil be light and sandy, and vegetation in consequence poor, yet, as the mountains are approached, the intermediate country is always beautiful and often fertile. The native grasses, like those of the larger island, are not the best adapted for the pasture of cattle or sheep ; but both the soil and climate are said to be well adapted for the European grasses, and even the native ones improve very much when kept short by grazing. As is the case with many soils in a state of nature, that of Van Diemen's Land becomes hard and indurated in the dry season, and soft and miry during the rains. This is of course most the case where the soil contains the most clay, and can be cured only by that pulverization of the soil

which is effected by the labour of the agriculturist. In this respect, however, the soil of Van Diemen's Land is not so bad as the clayey parts of New South Wales.

## CHAPTER III.

## NATIVE MINERALS AND PLANTS.

FROM the preceding chapters, some general idea may be gleaned, of the form, extent, general appearance, climate, and seasons, of the Australian lands ; and thus the reader is in possession of materials for the solution of one branch of the grand practical question, to which all geographical investigation should tend :—“ How far those lands are adapted, or desirable, as the habitation of civilized human beings ? ” and though, upon this branch, the general evidence does not warrant the admission of New Holland, as one whole, into the class of the valuable continents, yet, individual portions, some of them of very considerable extent, are very advantageous in themselves, abstractedly, and become more so, when the position of the British colonies and dependencies in India, and in Southern Africa, are taken into the account.

The next branch of the general question is, “ what

does the country produce? What natural substances, in the earth, on the surface, or in the surrounding seas, can be made available for the use and comfort of man, either immediately upon the spot, or in commerce with other nations?" The solution of this, is of equal value with the former; because it tends to determine whether the country is to be chiefly looked upon as an agricultural, or as a manufacturing country. It is of peculiar interest to those who may be disposed to emigrate, because by it they can decide whether they be the proper persons or not; and, upon the proper determination of that, their success or their failure, mainly depends.

On this part of the subject, the limits of the present work do not admit of anything like a detail of the numerous and novel productions of Australia; and the nature and object of it preclude any thing like a systematic, or scientific arrangement of even the facts stated. The grand object of practical inquiry, is not what the learned may be pleased to call any object; but the use to which plain men can apply it, as conducing to domestic comfort, or commercial profit.

THE MINERALOGY of Australia is very imperfectly known, not only in a scientific point of view, but as respects simple utility.

COAL, one of the most useful of all minerals, has been found, both on the east side of the Blue Mountains, and on the west; and from the presence, at Swan River, of strata which are the usual concomi-

tants of coal formations, there is every reason to conclude that coal will be found there also, and, probably, in every part of the country which it would be advisable to colonize. The coal formation on the east coast, has been traced from Botany Bay, more than one hundred miles to the north ; and it stretches nearly the same distance into the interior, the position where it has been most examined being on the branches of Hunter's River. There are interruptions, sometimes by the dipping down of the coal strata, and, at others, by the occurrence of rocky mountains ; but, in general, it lies much more level than coal generally does.

Where this coal-field has been opened, at Newcastle, it is easily worked, and, from their appearance, the other parts might be worked with equal ease. At the coast, the coal lies at a considerable height above the sea: the seam is more than three feet in thickness, and the depth, from the surface, is trifling for a coal-pit, being only about eighteen fathoms ; while some pits, at Newcastle, in England, are as much as one hundred and fifty fathoms. Thus, the expence of sinking, drawing up the coal, and drainage—by far the heaviest in coal working, are reduced to a mere trifle, in comparison ; and, as the mines are near the sea, the cheapness with which this coal could be procured, would fully compensate for the inferiority of its quality. It is not nearly so compact, or so full of bituminous matter as the coal of England, and thus it is not so durable ; but it is

said to burn well. The strata with which the coal is immediately in contact, is shale and clay slate of different degrees of consistency; and from the efflorescence upon the clay soil in New South Wales, as well as the taste of the water in pits, in very dry seasons, it appears that these strata are pretty strongly impregnated with sulphate of alumina (alum), and sulphate of iron (green vitriol); the shale and clay containing nodules, and sometimes veins, of iron ore, as is very generally the case with those accompanying coal. This coal can be furnished, at Sydney, at 20s. per ton, three-fourths of which is expended in the carriage of it sixty miles by sea. It is not generally used, however, as wood is still very abundant, and comes cheaper. As a supply for the inhabitants of the coast, or for vessels (and there appear to be many arguments in favour of steam navigation here, as a means of local intercourse) this field may be regarded as furnishing a supply of fuel, cheaply procured, of tolerable quality, and quite inexhaustible in quantity.

The extent of coal for the supply of the inland country, to the westward of the Blue Mountains, has not been so well ascertained; but it is described as being like charcoal in weight and consistency, and burning with a brilliant and steady flame. Should the quantity of this inland coal bear any proportion to its reputed quality, it will be of great value, when that country shall, at some distant period, become thickly inhabited.

The only metal of which there are any unequivocal proofs, as existing in any quantity, is iron ; and that seems to be plentifully diffused. On the shores of the Gulf of Carpentaria, and other parts of the north coast, iron is found, frequently in the state called bog ore, and of considerable richness. Near Port Macquarie, iron stone is so abundant as to form the principal material of some of the hills ; it is also plentiful at Swan River, and many other places : and it is occasionally so magnetic, that it is supposed to affect the variation in the compasses of vessels that approach near the shore. Statements of this kind are, however, to be admitted with the greatest caution.

Of the quantity of iron thus scattered over New Holland, no use has hitherto been made ; and so long as English iron, sorted in sizes and adapted to the purposes of the colony, can be purchased in quantities at Sydney, at three halfpence a pound, it is not very probable that iron works will be established in the colony. Still, it is satisfactory to know that, in case they should be needed, coal and iron, the two most valuable productions of the mine, are to be found in abundance.

Of the other metals, little has been discovered. Copper and lead are mentioned as having been traced, both in New South Wales and at Swan River, and the lead at the latter place is said to contain silver in some of the specimens, and arsenic in others. The mountains have not, however, been ex-

plored ; and thus, though no metal, save iron, has been discovered in useful quantity, we are not warranted in saying that there is none to be found. One disadvantage under which Europeans labour with regard to the mineralogy of Australia, is the condition in which they find the natives. These can communicate little information, save respecting the animals on which they feed, the tribes with which they fight, or the leading features of the scanty district over which they saunter ; and, instead of smelting an ore, or knowing where one is to be found, they have not so much as planted a vegetable. No cause has yet been shewn why the mountainous strata of Australia should not be metalliferous ; but, with the exception that has been stated, metals have not been found, nor does it appear that they have been sought for : the surface is still too little known, for its being reasonably expected that inquiry should have ransacked the bowels of the earth.

Neither does a comparison with adjacent countries help to throw any light on the subject. There is gold in the mountains of Timor, and also copper ; but, though the upper rock on the coasts of that island be calcareous, like those in many parts of New Holland, the composition of the mountains is not known. They rise to a much greater elevation than any that have yet been discovered in Australia ; and from that circumstance, it may, perhaps, be inferred that the rocks there are different. But, in the present state of our knowledge, the only conclusion that

can be easily arrived at with regard to the metals in New Holland, is, that there is nothing known of them that can in any way tempt a settler.

Even with regard to the earths and rocks, information is both imperfect, and vague so far as it goes. Over the clay-stone formation, earth fit for the manufacture of bricks may be expected; and pipe clay, or potter's clay, of very good quality, is abundant; but there is no mention made of those earths that are fitted for the making of porcelain.

On the sand-stone tracks near the coast, lime, in any form, is not to be expected; and though there be traces of it in the clay-slate, it does not appear to be worth working, unless it shall be sought for at a considerable depth. The sand-stone itself is of variable quality. That which is coarse grained, and, generally speaking, that which is exposed on the surface, is of so loose a texture that a heavy shower of rain reduces it to sand. That which is of a fine texture, and so deep below the surface as to be always wet, is more durable, and answers well for building, being, like many of the finer free-stones in Britain, soft and easily worked when fresh from the quarry, and hardening by exposure to the weather.

Some of the clayey strata can be raised thin enough for slates; but they are not equal to the slates of Wales or Cumberland. This clay slate is represented as becoming more free from silicious matter, and more impregnated with sulphuric acid, as the high grounds to the south-west of Sydney,

that divide the sources of the Hawkesbury from those of the smaller rivers that run to the south-east coast, are approached. There its impregnation is said to be such that alum is often found in native crystals, and might be artificially obtained in large quantities, should the manufactures of the colony render a large supply necessary.

Of limestone, near Sydney, there is none ; and none has yet been discovered so near as would pay for the long land carriage. There is, however, a substitute, which answers for architectural purposes, in the vast heaps of shells that are found on the shores of some of the inlets. These shells are found in great quantities : and it need hardly be added, that when they are burnt they make a very pure lime. On approaching the mountains southward, mountain limestone makes its appearance. It is found in beds of great thickness, of a greyish colour, and in some instances so compact, that it may pass for an inferior species of marble. The limestone strata occur again, on the west side of the mountains, at Bathurst, and they are found also in the elevated plains near the sources of Hunter's river. In both of these places the lime occurs in the common form of limestone, or carbonate, and also in that of plaster-stone, or sulphate ; but both are at too great a distance from the coast for being of any great value, except in the neighbourhoods where they are found. Calcareous rocks have been seen on so many parts of the coast, that it is by no means improbable that

there is a great deal of limestone in the central parts of the country.

Of the stones usually called gems, none of the more valuable kinds have been found in Australia. In the quartz formations, there are rock crystals of various colours, and garnets and agates are also met with. The whole information is, however, so imperfect, that it is impossible to guess what may or may not still be discovered.

Though the rocks in some parts of New Holland be of those descriptions that are usually called volcanic, there are no signs either of a volcano or of any thing that has the appearance of ever having been one. On some parts of the eastern shore, more especially in Moreton Bay, considerable quantities of pumice-stone have been found; and from the singular appearance of two peaks in that quarter, like the cones of glass-houses, (from which the bay was at first called Glass-house Bay,) it was supposed that the formation of this part of the rock was volcanic. When, however, those peaks were visited, there was no indication of a volcanic origin about them. Peaks somewhat analogous in their form, were subsequently found upon the north-west coast, where the dull strata of sandstone, lying perfectly horizontal, showed that no subterraneous action of volcano, or anything else, has disturbed the country. There has not yet been discovered any source on New Holland whence this pumice-stone could have come; but as pumice is a light substance, and as the current of

which the eddy sets northward along this shore, comes from a great distance, the pumice-stone may have been wafted by it from some of the volcanic isles of the Pacific, and deposited where it was found.

#### NATIVE VEGETATION.

But if the mineralogy of Australia differ from that of the other continents in its formation, chiefly in the remarkable flatness of the beds of sandstone, the parallel ends here: in its plants, animals, and indigenous population, it is mostly novel in character as well as new in discovery.

Between all the continents there are considerable shades of difference in those respects; but Australia differs from them all: and from those which are nearest, as much, if not more, than from those that are most remote. It will simplify the matter if we notice the three great families into which the vegetable tribes are divided, according to the natural system of *Jussieu*. There are *bicotyledones*, having two lobes in the seed; *monocotyledones*, having one lobe, and *acotyledones*, or those in which lobes are not found. This division is not perfectly accurate, as some seeds have more than two lobes, and others, which *Jussieu* has classed as having one, have really none; but it is convenient, as being simple, and, generally speaking, natural. The first and second of these classes are called

*phænogamous* plants, because their mode of producing seeds from flowers is seen ; the *acotyledones* are called *cryptogamous*, because their mode of producing seeds from flowers is not seen. The phænogamous plants produce all the beauty of the flower-garden, the strength of the forest, and the wealth of the field and the orchard ; and they are, therefore, by far the most interesting and valuable. The *cryptogamia*, include the mosses, the fungi, the ferns, sea-weed, and several others, all of them comparatively of minor importance.

According to Brown, the cryptogamous plants form the smallest portion of the whole, at moderate heights in the regions of the equator, and they increase in proportion as the climate becomes cold and moist. At the equator they are not, in average situations, as one to four ; when the latitude of  $45^{\circ}$  is passed, the two become nearly equal ; and in the cold regions the cryptogamous become the more numerous. The cryptogamous plants, many of which continue growing at the one extremity while they are decaying at the other, favour the accumulation of mould, though not of the most valuable description for phænogamous plants, except particular genera ; and, by being bad conductors of heat, they also favour the retention of humidity. In New Holland this family of plants is in very inferior proportion ; upon the islands in the Gulf of Carpentaria, Brown collected two hundred species of phænogamous plants, but he did not meet with a single moss : and he

concludes that in the tropical parts of that country, instead of forming about one-fifth of the whole, they do not form one-twelfth. In this distribution of its plants, though we do not see the original cause of the comparatively dry state of New Holland, we see a reason for its continuance.

Of phænogamous plants, the monocotyledones contain many valuable as well as beautiful genera,—as, the grasses, including the grain-bearing ones; the palms; the plantain; the pine-apple; and many others. Of these, however, there are few, if any, the stems of which fall under the denomination of what is popularly called timber. The fibres have often great strength, and the stems are of long duration; but there is generally a want of uniformity in the texture, and of adhesion in the lateral fibres. In the tropical parts of the Northern Hemisphere, the bicotyledonous plants are to the monocotyledonous as five to one, but they decrease as the latitude increases, till, about the latitude of St. Petersburg, the two are nearly equal. Throughout the whole of New Holland, on the other hand, their relative proportions are nearly the same, being four of the former to one of the latter. This in so far accounts for the comparatively small variety of trees in tropical Australia, and of grasses in the higher latitudes. These, however, are only approximations, and the vegetable character of the country cannot be confidently stated until the interior has been explored.

One remarkable feature in the surface vegetation

of Australia is the absence of even an approximation to the grain-bearing grasses, either of the warm or the temperate climates. There is no plant there having the least resemblance to the rice and Indian corn of warm countries, or to wheat, or the other grains of the old world. There are leguminous, or podded plants, but they have no similarity to the cultivated ones of the other parts of the world, and the seeds of few or none of them are fit for being eaten. The same also may be said with regard to fruits, there not being, native, in the extent of Australia a single species upon which man could subsist; and there are remarkably few that can be eaten at all. The farinaceous seeds of the screw-pine, (*pandanus spiralis Br.*) and of several cone-bearing trees, are occasionally bruised and eaten by the natives; but the best of them are certainly inferior to the seeds of the stone pine, which are used for the same purpose on some parts of the Mediterranean, or those of the gigantic new pines, recently discovered by Mr. Douglas in the western part of North America.

In general terms, it may be said that the grassy surface of New Holland, when dry and warm, is composed of a vegetation so hard and wiry as to be of little value; and that where it is wet and swampy, the grasses have very much the character of reeds. Even those surfaces which are elevated, of thin soil, and covered by small shrubby plants, have a very different appearance from those in any other part of the world.

In most other regions there are heaths; and in southern Africa, which lies nearest to Australia, and in the same latitude with it, heaths are very numerous, and many of them are remarkable for their beauty. In New Holland, again, the place of the heaths is supplied by the *epacrideæ*, consisting of *epacris*, and a number of similar plants, all of them of a very hard and dry texture, though the flowers of some, as, for instance, the *epacris grandiflora*, are of great beauty. Indeed beauty combined with singularity of structure, are the prevailing characters of some of the shrubs, and of very many of the herbaceous flowers of New Holland.

The principal points of view in which the vegetation of a country present themselves, are three: first, as timber for building, furniture, and other domestic purposes; secondly, as affording food for man and for domestic animals; and thirdly, as furnishing extracts and other substances that may be useful in the arts. It will, therefore, be proper to consider some of the principal vegetables of Australia with reference to each of these three objects. This will not of course give any thing like an estimate of the capabilities of the country when cultivated; but it will shew what the first colonists met with, as well as what settlers on new land may reasonably expect, and thus point out to them the additions that they will have to make, before their localities can be brought to their estimate of comfort.

**TIMBER TREES.** — The singular appearance of

the Australian forests, arising from the contrast of the white stems, without lateral branches for a great part of the height, and clear from all brush and underwood, with the dull and unchanging brownish green of the leaves, has already been noticed.

This character is general, both in Van Diemen's Land and New South Wales, with the exception of some particular parts of the shores of the latter. The trees of which those forests are composed, have little resemblance, either in their structure or the quality of their timber, to those of any other country ; and those which botanically belong to the same families have not the same nature.

*Eucalyptus* is one of the trees of most frequent occurrence, there being considerably upwards of one hundred species of it already known, varying in size, from a lofty forest tree, one hundred and fifty feet high, and about thirteen feet in diameter at the base, to small and insignificant shrubs. It would occupy too much space to enumerate the half of these : and therefore those only are noticed which are best known in the colony.

*Eucalyptus robusta* is by much the largest of the species, growing to the height of more than one hundred feet, and being of the largest size on the coldest latitudes in the country. Few of the Australian trees are so apt to be full of shakes internally as this most stately looking of them all, and probably it owes that casualty to its stiffness. It is also very prone to rot. The tree is far from handsome,

on account of the nakedness of the trunk, and the want of leaves upon the branches till near the top. The leaves of the eucalyptus, which are shaped nearly like those of the myrtle, are large and thick, and by a twist in the foot stalks, they stand vertically, and not horizontally like those of the European trees, by which means both sides are of the same colour. This tree has sometimes got the name of mahogany, though it has no relation to the mahogany tree of America in its habits, the colour, or the qualities of its timber.

The blue gum-tree (*eucalyptus piperita*) grows also to a large size, and is a far more valuable and serviceable tree. This is indeed one of the best of the eucalypti for general purposes, and the colonists employ it for beams, both in houses and in ship building. It is sometimes called the peppermint tree; and is said to yield an oil which is of some use as a medicine.

The black butted gum tree, an unnamed eucalyptus, resembles the former in the quality, though not in the colour of its timber, which is of a dull straw colour, while the former is of a reddish brown. The timber of this eucalyptus is made use of by the colonist for boarding; and, judging from its appearance, it seems by no means ill adapted for the purpose.

To another eucalyptus, which is very close, hard, and weighty, though like most of the genus, liable to splinter, the colonists give the name of box. It

is used for agricultural purposes where strength and roughness are required. The stringy bark grows erect ; and therefore it answers well for splitting, to make fences ; and it is also used for masts, though from its being considerably heavier than beech, it does not seem the best adapted for the purpose. It gets the name of stringy bark from the tattered condition in which the bark is generally found.

The *eucalypti* in some of the species are found in every region of Australia, and form one of the characters of the forests of that country. Like many of the other trees of that part of the world they decay at the heart, while the outside remains green ; and this often takes place to such an extent, that they are fit for being laid down as water pipes without boring.

The points upon the coasts of New Holland where timber has been most carefully examined are at the Illawarra, or Five Island District, to the south of Sydney ; at Moreton Bay, on the east coast ; and near Careening Bay on the north-west.

The red cedar tree (*cedrela Australis*) is the most esteemed timber tree in the Illawarra district, and there are also forests of it on the banks of Hunter's River. The cutting of cedar is a regular trade in the Illawarra, and will probably continue so till the forest be exhausted. Those who deal in the timber, that is, bring it to Parramatta or Sydney for sale, must have a government permit, otherwise their loads would be seized. The forest is so close and entangled with climbing plants, (very different from

the forests of the eucalyptus,) that the trade will not bear the expense of a cart road. Accordingly, the carriers bear the planks on their backs; and the cutters and sawyers have to cut their way before they can reach the trees. The planks are cut in lengths of eight feet, and an inch or two inches in thickness. More than two-thirds of the expense of the price at which this cedar sells at Sydney and Parramatta consists in the expense of carriage: the distance out of the forest by manual labour being considerable, and the cartage nearly sixty miles, over a wretched road. The forests contain a great variety of other trees, many of them of large size, some of which have not yet been named even by botanists. On the low shores of this district, a cabbage palm (*Seaforthea elegans*) grows to a large size. Palms are of little value as timber; but the leaves of this one are plaited into hats, and form excellent thatch while the spathas are of such dimensions that they are used for milk pails and cream pans in the dairy.

The researches of Messrs. Oxley and Cunningham in the northern parts of New South Wales, have made some important additions to the timber of the colony. The Moreton Bay pine (*Araucaria Cunninghamii*) grows abundantly on the banks of the Brisbane, and is a stately tree, occurring sometimes one hundred and fifty feet high, and often four feet in diameter. It was once considered as a variety of Norfolk Island pine; but from its forming a thick and flat top, instead of being

pyramidal, like the other, Mr. Cunningham is disposed to consider it as distinct. This pine is common for nine hundred miles along the east coast, from Lat. 29° 30' northwards.

*Flindersia Australis*, which had been previously found by Mr. Brown, in less favourable situations, was met with by Mr. Cunningham rising to an elevation of upwards of one hundred feet. In its general character this tree has some resemblance to the cedar of the colonists, though the wood is of a different colour. The capsules containing the seeds are remarkable for their rough surface. *Callitris arenosa* grows to be a large tree, and both it and *callitris pyramidalis* get the name of cypress.

In the winter of 1828, two important additions were made to the forest trees of Moreton Bay, the one as a timber tree, and the other as a fruit tree, or rather, strictly speaking, as a *pea tree*, which is a still greater novelty in the colony. The timber tree, *Oxleya anthonoxylon*, which is closely allied to *Flindersia*, and differs from it chiefly in the arrangements of the seeds, is a tree of large size, reaching to one hundred feet, with a diameter of about four feet at the base, in the dense forests with which the banks of the Brisbane River are clothed. The timber, which when recently cut is of a yellow colour, is much esteemed at the settlement, both in ship and in house carpentry. The fruit tree is also a new genus (*castanospermum Australis*), so called from the resemblance of its seeds to the kernels of the

chesnut; it is described as being an highly ornamental tree, and forming a delightful shade. It rises to about forty feet in height; the qualities of the timber have not been specifically mentioned. The vegetable novelties, even in the single department of timber trees, are however so numerous in this part of Australia, that a mere specimen must suffice.

The timber, on that part of the north-west coast which has been alluded to, is of less consequence, on account of its remoteness from any settlement, except the station on Melville Island, from which also it is at a considerable distance: the names, and a single quality of some of the leading species which Mr. Cunningham found there, must therefore suffice. Among them were mountain ebony, (*Bauhinia macrophylla*), the internal part of which is black and very hard. Like the true ebony, it is but a small tree, being from ten to twenty feet high, and from five to eight inches in diameter. The Australian jujube (*Zizyphus Australis?*) is a close grained white wood, sometimes attaining the height of thirty feet. The tropical native cherry (*Exocarpus latifolia*), also produces white and hard wood, and, which is not very usual in Australian trees, the bark is of a bright green colour. This is comparatively a small tree, as is indeed the case with all the useful timber trees found on that coast: even the eucalyptus does not grow large, and it is quite useless for mechanical purposes.

*Exocarpus cupressiformis*, to which the colonists

give the name of the cherry tree, is another, which is so abundantly and widely diffused, that it forms a characteristic feature in the scenery. It does not grow to nearly so large a size as the eucalyptus; but the appearance of the tree, which, from its name resembles that of the cypress, is more agreeable to a European. Though called the cherry tree, it has no connexion with the bearing of cherries, the fleshy receptacle which contains the seeds having more resemblance to the berry of the yew. This genus is common in all latitudes of Australia; and, like the eucalyptus, it is rare in every other part of the world, and probably not to be met with, except in some of the other islands of the Pacific.

*Xanthorrhœa*, called the yellow gum, or yellow resin tree, and also the grass tree, is another of the singular vegetables of Australia. It has a short rough stem, full of gummy or resinous juice, on the top of which there is a thick tuft, or crown, of long grassy leaves, dependant at the points, like a plume of feathers. From the middle of these, there rises a tall scape, or flowering stem, which, with the inflorescence at the top, has very much the appearance of a spear; and some tribes of the natives make use of the stem for that purpose. On this account the larger species gets the name of *xanthorrhœa hastile*.

To the *casuarina*, though it has no resemblance whatever to any species of oak, the colonists give the name of the oak tree. The *casuarinæ*, though some

of them rise to a great height, are slender trees, without leaves properly so called, and in some species they are marked with joints like a reed, which, however, have no reference to the insertion of the small branches, as is the case with the reeds. There are three principal species to which the colonists have given names, and the timber of which is indiscriminately called oak or beef-wood. These three species are, the she oak (*casuarina stricta*) remarkable for its upright growth; the forest oak (*casuarina torulosa*) of which the bark has some resemblance to that of the cork oak; and the swamp oak (*casuarina paludosa*) which, as the name implies, grows in marshy and swampy places. The timber of all the species is very hard and heavy. It is of a mottled appearance, is much used in the colony for furniture; and in this country, it is occasionally used in ornamental cabinet work, under the name of beef-wood, or Botany Bay wood. The sound trees are of small diameter, however, as the casuarina is more prone to rot at the heart than even the eucalyptus. Though the casuarina has little or no resemblance to any European tree, its habits and fructification resemble those of the pine more than the oak.

The white cedar is nearly allied to the common bead-tree of India (*melia azedarach*), a tree which grows not only in India, but in the Levant. The timber is light coloured, but compact and tough. The tree divides into a number of long and straight branches, and gets the name of melia from its fitness for mak-

ing spears. It is called the bead-tree, because the nuts, which are round and very hard, are often bored and strung as beads by the Roman Catholics. When recent, the nuts are enclosed in a pulp, amounting in all to the size of a cherry, and understood to be poisonous. In favourable situations, this white cedar grows to be a pretty large tree ; and, indeed, the red cedar is often of considerable dimensions—upwards of forty feet in height, with a diameter of nearly three feet at the base. These trees are not so much disposed to internal rot as some of the others.

The Australian rose-wood (*trichilia glandulosa*) yields hard timber ; it is found in the same kind of soil with the trees called cedars ; but it is very much disposed to rot ; and though it has a scent somewhat resembling a rose, it has none of the beauty, as timber, of the rose-wood imported from Brazil, which is so much used for cabinet work in England,—though some persons, and, among the rest, French authors of some consideration, have confounded the two, and given the scent and the colour indiscriminately to both.

Very many species of *acacia* are found in Australia ; they are very generally diffused, and form a feature of the forests. Locally, they are known by the name of wattles, from the slender twigs being used for that purpose. The *acacia melanoxylon*, is called the black wattle ; and the *acacia decurrens*, the green wattle. The acacias, in all their varieties, are elegant trees ; and they are among the few in

the Australian forests, which an European would be disposed to consider as ornamental. Of the acacia, there are more than one hundred species scattered over Australia, and of these a considerable number belong to the leafless kind. The papilionaceous, or pea-shaped flowers, are, in many of the species, very beautiful. The acacias are very widely spread over Australia, being found from the tropical shores to the southmost parts of Van Diemen's Land, and in the interior as well as on the coast. The leafless varieties are very rare, if at all found, in any other part of the world.

A pine, different from the Moreton Bay pine, is found chiefly in Van Diemen's Land, and having been first observed upon the banks of the Huon River, it has got the name of the Huon Pine. This pine, Brown considers a *dacrydium*; and though a large tree, it has this peculiarity, that the flowers are so minute as not to be discovered without the assistance of a magnifying glass. The following is the description, given by Captain King, of its habits in that part of the Huon River where it is most abundant:—

“ Having landed at the bottom of the cove, where the Sophia had obtained her cargo, we found the Huon pine trees, interspersed with many others of different species, growing with great profusion within three yards of the edge of the water, upon a soil of decomposed vegetable matter, which, in many parts, was so soft that we often sank ankle deep, and occa-

sionally up to the knees in it ; this swampy nature of the soil is to be attributed to the crowded state of the trees ; for they grow so close to each other, as to prevent the rays of the sun from penetrating to the soil.

“ The ground is also strewed with fallen trees, the stems of which are covered with a thick coat of moss, in which seedlings of all the varieties of trees and plants that grow here, were springing up, on the prostrate stem of, perhaps, their parent tree ; and it was not rare to see large Huon pines, of three feet in diameter, rooted in this manner, on the trunk of a sound tree of even larger dimensions, that had, perhaps, been lying on the ground for centuries ; while others were observed, in appearance sound, and in shape perfect, and also covered with moss ; which, upon being trod upon, fell in and crumbled away.”

A different description of pine, of inferior size, but adapted for nearly the same purposes as the Huon pine, is found at no great distance. This is the Adventure Bay pine, which grows on the east side of Bruni Island, on the Storm Bay entrance to the Derwent. The largest dimensions of this pine that have been observed, are, a height of about fifty feet, and a diameter of sixteen inches at the base ; while the Huon pine has been met with more than sixty feet in altitude, and with a base diameter of five feet. Labillardière has figured and described this tree as a *podocarpus* ; while Brown, on the

other hand, considers it as a *dacrydium*. To the latter it certainly has a strong resemblance, both in the minuteness of its flowers, and its general habits. One remarkable property of it is the extremely ragged appearance of the leaves, hardly two being of the same shape. As has been mentioned of some other of the Australian trees, the leaves of the Adventure Bay pine grow vertically instead of horizontally.

The *tea-tree* of the colonists belongs to the beautiful genus *melaleuca*, of which there are many species in Australia, though only two have been found in other parts of the world. What is commonly called the tea-tree, is the toad-flax leaved *melaleuca*. It has no analogy whatever to the tea-tree of China, though an infusion of the leaves be often used as a substitute, as might probably be the case with many other trees, if the use of them were fashionable. This tree thrives most abundantly in marshes, and is, properly, a large shrub rather than a tree. The shoots grow to a great length, are very straight, and both tough and elastic. The natives use them for spears, and they might be applied to many purposes in the arts.

The mangroves on the Australian shores often rise to a great height; they are met with on the banks of the small river Liverpool, on the north shore, of a tapering shape, like poplars, of sixty feet in height, and three in diameter at the base. When dry, however, the timber of most mangroves is light and spongy,

fit only for burning, and not very well adapted for that.

In one respect, several of the timbers of Australia, and, among others, the stringy-bark eucalyptus, have a considerable resemblance to the larch of Europe: which would lead one to infer, that the resin, or gum, which they contain, has some analogy to the turpentine of that tree. They burn with great difficulty, so that a live coal, if laid above a board of this timber, will smoulder and die before it hardly singes the surface. This property renders those timbers very advantageous for boarding the walls, and shingling the roofs of houses, from the little danger that there is of such houses being burnt. One would almost be tempted to believe that this were a provision of nature for the protection of the trees against those casualties to which they are sometimes exposed, as well from spontaneous fires on the grass, as from the setting of it on fire by the natives.

#### SPECIMENS OF AUSTRALIAN TIMBER.

Being favoured with an examination of a number of species of Australian timber, in specimens of sufficient size for forming a tolerable judgment of their qualities, and having been kindly permitted to ascertain what we believe to be a tolerable approximation to their specific gravities, we cannot close this notice more usefully than by briefly stating the results.

The specimens came from Mr. Cunningham by the Lady Blackwood, Captain Dibbs, that left Sydney in February 1829, and were received by the botanical gentlemen in the employment of his Majesty, to whom we are indebted for being able to communicate this as well as other new and valuable information respecting Australia. As these timbers are the most easily accessible ones in the settled part of the colony, a knowledge of them must be of some advantage to the settler, as well as to those who may, from the names bestowed upon some of the native productions, be disposed to compare them as subjects of commerce with the productions of other countries.

#### FROM THE COLONY.

1. Blue gum (*eucalyptus piperita*). This is a very handsome timber, of straight and uniform grain, close and compact, of a bright brownish red, not unlike mahogany, but not curled or veined. It does not appear to warp, shake, or splinter, and cuts clean. It is mostly used in the colony in ship and house carpentry, though it seems by no means badly adapted for furniture, and almost for every domestic purpose. The specific gravity of the specimen (that of water, temperature 52°, being 1000,) is 930, consequently a cubic foot of it weighs about 58lbs. avoirdupois.

2. Black-butted gum-tree (*eucalyptus* ——),

also a straight-grained timber, having the smell and something the colour of German oak, though the grain is different. It seems a tough and firm timber, and well adapted for the purpose to which it is chiefly applied—that of flooring. This specimen is not quite so heavy as the former, its specific gravity being 883.

3. The Box of the colonists (*eucalyptus* ——). This is a very compact and heavy timber; but it is rough and splintery, and evidently difficult to work. It is used for agricultural purposes, such as plough beams and cart wheels. It is of a dull, unpleasant colour, and heavier than water, its specific gravity being 1050.

4. Stringy-bark (*eucalyptus* ——). This has a considerable resemblance to No. 2, only it is rather harder, rougher, and apparently more disposed to splinter. It is also less compact and uniform in the grain. It is split for fences, and also used for masts, though it seems a heavy timber for the latter, its specific gravity being 918.

5. Apple-tree (*angophora laceolata*). This is tough and hard timber, having some resemblance to No. 4, but rather closer in the grain, and a little splintery. It is used for plough boards; its specific gravity is 834.

6. Turpentine tree (*tristania albicans*). This specimen is of a reddish colour, with white sap-wood. The texture of the central part is uniform, and it seems free from shake or splinter; but in the note

accompanying it, it is described as "not used." Specific gravity, 838.

7. Mahogany of the colonists, (*eucalyptus* ——.) This, though it be not veined in the specimen, nearly resembles the plainer Honduras mahogany. It is of uniform texture and colour, compact, and cuts clean. The grain wants that irregular veining which characterises mahogany ; still it seems a very good timber. It is used for fences, and also for chairs and other articles of furniture. Specific gravity, 916.

8. Forest oak, or beef-wood (*casuarina torulosa*). The timber of this tree consists of a sort of network of fibres, containing a darker substance in the openings, which is not fibrous, and which, in the sap-wood or recent wood, appears to be of very slight tenacity. When cut at right angles to the heart, its appearance is rather handsomely mottled, and its colour is of a tolerably bright yellowish red. It is obtained only of a small diameter. It is a weighty timber, its specific gravity being 1030.

9. Large-leaved light wood (*Weinmannia arbuti-folia*). This is a soft and spongy timber, having in its texture some resemblance to poplar ; but, from the specimen, it appears very apt to warp and shrink, though it be free from splinters. It is used for window sashes. Its specific gravity is about 544.

10. Iron bark (*eucalyptus resinifera*). This specimen has the colour, and a good deal of the grain, of chestnut. It is exceedingly hard and tough, but much splintered. It is stated as being used for fence-

ing, and also for tree-nails, and other purposes requiring a good deal of strength in a small body of timber. It is a heavy timber, its specific gravity being 1128.

11. Narrow-leaved light wood (*ceratopetalum gummiferum*). This specimen is very light and spongy, and has been taken from a tall, slender tree. Like No. 9, it has some resemblance to poplar; but it is a little darker in colour. It is used for window sashes. Specific gravity, 727.

12. Honeysuckle (*Banksea integrifolia*) is a singular timber. It has the texture of beef-wood, only it is not nearly so firm and so compact; and the colour is much darker, the red matter contained in the fibrous tissue being sometimes nearly black, and bearing a much greater proportion to the whole mass than in beef-wood. In the sapwood the fibres are very loose, and the intermediate matter appears to be easily separated. It is said to be used for knees in boat building; but its recommendation must lie more in its form than in its quality. The specific gravity of this specimen is only 755.

13. Pear-tree (*xylomelum pyriforme*) has a good deal of resemblance to the last specimen, both in texture and colour; but the fibres, though more widely apart, are in themselves more compact, and the intermediate matter of a firmer consistency. The specimen contains a good deal of sapwood, which is of loose texture, and very white. This timber is used for gun stocks; but it must be much inferior to the walnut-tree of England. Specific gravity, 785.

14. Red Gum (*eucalyptus robusta*). Very hard, and apparently tough in the individual fibres; but of a bad colour; rough, splintery, full of decayed portions here and there. Mr. Cunningham says it is "of no use, not even to burn." The latter description must however apply only to the green wood; for upon trying a small portion of the dry, it was found to kindle readily, burn with clear lambent flame, without smoke, and, indeed, both in brilliance and durability of flame it appeared superior to most of the timbers of this country: so that, though it may not be useful for any other purpose, properly dried it would certainly make excellent firewood. Specific gravity, 907.

15. Blood-tree (*eucalyptus*, allied to 14). This is a coarse-grained timber, of a dull reddish colour, with a considerable wave or curl in the grain, but destitute of beauty, and apparently also of strength. It is chiefly used as firewood. Specific gravity, 728.

16. Red Cedar (*cedrela Australis*—*C. toona, Rox.*) is a very fine timber. It is of uniform colour, though, in other respects, and even in the leaves, fruit, and general habits of the tree, very similar to mahogany. It works easily, and takes a fine polish. Like mahogany, it loses its colour when exposed to the air; but, excepting mahogany, we have no timber so handsome for inside work. It is a light timber, but tough, and by no means splintery. Specific gravity, 436.

## FROM MORETON BAY

From this place there were three specimens, of which only two (*Flindersia* and *Oxleya*) were named, and reference to the individuals was not given; so that the naming of them would be an injustice to Mr. Cunningham,—though it is probable that No. 1. is *Oxleya*, and Nos. 2. and 3. *Flindersia*.

1. A compact and heavy timber, of a pale straw-colour, and in grain not very unlike teak. The specimen has been cut from a tree of large dimensions. Specific gravity, 833.

2. Taken from a much smaller tree; great part toward the outside sapwood; white, and apparently beginning to decay; the heart beautifully striped and clouded, of a colour intermediate between rose-wood and king-wood; hard, and susceptible of a fine polish. If abundant in quantity and durable, this might be a valuable timber for ornamental work. Specific gravity, 769.

3. Very like No. 2 in texture and consistency, only not quite so hard, and containing a greater quantity of sap. Heart, clouded, and of a yellow of considerable brightness. Perhaps this may be No. 2, in an earlier stage of its growth. Specific gravity, about 857.

4. Moreton Bay pine (*araucaria Cunninghamii*) is a light-coloured timber, fine in the grain, very close and handsome, and by no means weighty. In appearance it is far superior to any kind of deal;

and as it is sonorous, it would answer well for musical instruments. For planking, and for masts and spars, as well as for all purposes of house carpentry, this seems an excellent timber. Specific gravity, 535.

**ESCULENT VEGETABLES.**—The native productions of Australia which are deserving of that name, are remarkably few, as compared with those of any other country of the same extent, and enjoying the same advantages of climate. Culinary vegetables there are none, with the exception of a species of wild spinach, which is found on the sandy shores, and which, though eagerly sought for there, would not be much esteemed in any other country. Of the fruits, to which the colonists have given English names, there are none which possess any of the good qualities of their European namesakes; and until the discovery of the *castanospermum Australe* by Mr. Cunningham, there was hardly any thing in the catalogue, that a European could eat, unless reduced to the greatest necessity.

*Castanospermum* is, as has been said, a handsome tree; its leaves bear some resemblance to those of the elder, and its flowers are papilionaceous, or in the shape of those of the pea. The fruit is not a nut, but a very large and rather handsome pod, not very unlike the pod of a windsor bean, in its form, but of a brown colour and hard surface. Within it is lined with a silky down; of a white colour, and contains a variable number of seeds or beans, which are, when full grown, much larger

than chestnuts. These beans are roundish, but flattened on one side, and covered with a loose membrane, which is not unlike the skin of a chestnut, but much more easily separated. The odour, especially when they are undergoing the process of roasting, is agreeable, intermediate between that of good oatmeal cake and a potato newly dug and roasted. The flavour, though not so sweet, is nearly as grateful as that of the Spanish chestnut. As the tree produces abundantly, if it be found in sufficient quantity it may be an object of commerce, or may be worthy of cultivation, more especially if the wood correspond in value with the seeds. It seems to bear being carried to a distance; for a specimen, which probably had not altogether been ripe, though kept for twelve months, and carried sixteen thousand miles, tasted as fresh, and had indeed the same fresh appearance, as if it had been newly gathered.

The apple-tree of the colonists (*angophora lanceolata*) is of no value whatever as a fruit tree. There are other two genera, which both get and deserve the name of apples in other countries, but the New Holland species are so very inferior, that they do not admit of a comparison. The apple on the tropical coast belongs to the same genus as the Malay apple (*Eugenia*); but it is so exceedingly sour that it cannot be eaten. The Coal River apple (*achras Australis*) belongs to the same genus with the mainmee of tropical America, but it also is very inferior. The pear (*xylomelum pyriforme*) is something in the shape of

a pear, but instead of being esculent, it is of a more rigid structure than most timber, and can hardly be cut with a knife.

The Moreton Bay lime (*limonia (?) Australis*) was found by Mr. Cunningham in the woods upon the Brisbane. It is of a most beautiful green, with lanciolate leaves, a little serrated, and a stiff and sharp green spine at the insertion of each. The tree has not been met with in flower; but the small green fruit have the formation and odour, and the pulp the flavour of the lime. Both this and the former are beautiful trees, remarkable for the gloss and brightness of the leaves and twigs.

It was mentioned that the *epacrideæ* came in place of the heaths. *Epaeris* answers to *enica*, and *lissanthe* to *vaccinium*. The Australian cranberry (*lissanthe sapida*) is a beautiful fruited shrub. It grows upon the slopes of the Blue Mountains to the height of from three to nine feet, has handsome yellow flowers, in bunches of from one to five or six, which, the second year, are followed by beautiful crimson berries, upon which, however, there is not a great deal of pulp. The taste resembles that of the Siberian crab. It seems highly probable that the *epacrideæ* generally produces edible berries.

The cherry is the capsule of the *exocarpus cupres-siformis*; but it is not edible.

The plum is the berry of *Cargillia arborea*, rather an elegant tapering tree, which is found on the banks of the Brisbane River, attaining a height

of at least eighty feet. The berries are unfit for human food, but they are very abundant, and attract large flocks of pigeons from the inter-tropical parts of the country, during the winter season, when they are ripe.

The currant shrub (*leptomeria acerba*) produces berries which have pulp, and the flavour is not disagreeable; but they are so exceedingly tart, that they cannot be used, either in preserves, or for sharpening liquors, without an admixture of the milder fruit of some other country. The colonists usually prepare them along with raspberries, and this preparation, which is very sharply acid, is much relished at Sydney during the dry and burning months.

No spice or pepper plants, properly speaking, have been hitherto found in Australia. There are many species of *capparis*, and one which was found on the north coast had a singular appearance in the stem, which, though not exceeding thirty feet in height, had a diameter of nearly nine feet; it was full of sap, and swelled and tubercled as if diseased; but it does not appear that any of these produces anything bearing the least resemblance to the caper bush. On the tropical shores, a species of wild nutmeg (*myristica insipida*) is not uncommon, but it is perfectly useless. There is some reason to believe that the cocoa-nut grows on some of the tropical parts of the east coast; but the tree has not yet been met with.

Among the vegetables eaten by the natives, is the

esculent fern, (*pteris esculenta*), which is pretty generally distributed, more especially on the east coast. Some of these ferns bear, in their leaves at least, a very close resemblance to the most common fern of England. They are described as in general rising about the height of four feet ; and the roots contain a considerable portion of farinaceous matter, with which, however, woody fibres are mixed, and the whole is neither very nutritive nor very palatable. In many places, however, these roots form the only vegetable food, and at certain seasons the only food, of the natives. In some places too, the farinaceous seeds of certain species of *stereulea*, and of some of the grasses, are bruised and eaten.

The Buckra yam (*caladium macrorhizum*) is an esculent root of some value ; and, even to Europeans, both that, and the tuft of the cabbage palm, (*Seaforthia*) might form a tolerable substitute for better vegetables.

**SUBSTANCES.**—The substances obtained from Australian vegetables have not hitherto been much used in the arts. The principal ones are gums. The gum of the *eucalyptus* is represented as being of an astringent nature, and bearing a considerable resemblance to the gum kino of the shops. The gum of the acacia has, on the other hand, a very considerable resemblance to gum arabie ; it is found in great quantity upon almost all the species, and might probably be converted into an article of commerce. The time for collecting it is when the dry

season is considerably advanced, as it then exudes from the cracks and fissures of the bark, in tears, which are transparent, but which, being soluble in water, are washed away when the rains set in. It is understood that the resinous gums of some of the Australian trees may be used as a substitute for pitch in protecting the planking of ships; and by whatever process it is consolidated, the gummy cement of the *Xanthorrhæa*, by which the natives unite the different portions of their spears and other weapons, and fix bits of stone or shell to their hammers and knives, or barbs to their more formidable spears, acquires nearly the hardness of horn. It is by no means improbable that an oil, possessing the qualities of the *Cajiput* oil of the south-east of Asia, may be obtained from some of the numerous species of *melaleuca* which are so abundant in Australia. The tree which furnishes that oil is a *melaleuca*, and, indeed, the one from which the genus is named. *Caya puti*, in the Malay language, signifies white tree, which is partly the meaning of the generic name. The bark of the species called the tea-tree is of some use in domestic economy: it is thick and spongy, and serves as a substitute for tinder. The bark of many of the trees is useful. The natives make shields and canoes, and coverings for their habitations, such as they are, of it; and, as many of the trees cast their bark, an annual supply is obtained, without any necessary destruction of the forests. The bark of the currijong (*hibiscus heterophyllus*)

is tough and fibrous, and answers very well for the manufacture of ropes. The bark of the black wattle is employed in the tanning of leather, and has been reported as containing more tannin than the oak-bark of Europe. It has been exported, both in substance, and in the form of an extract which was supposed to embody all the strength of the bark ; but that does not appear to have been the case, as the exportation of the prepared extract has fallen off greatly, if it has not ceased altogether.

A ground rattan (*calamus caryotoides*), which, on many parts of the east coast, climbs to the top of the tallest trees, is used by the natives for sewing thin canoes, and for making baskets.

One species of *eucalyptus*, which is met with in the cold and elevated parts of the colony on both sides of the Blue Mountains, furnishes a considerable quantity of manna, and has on that account got the specific name of *eucalyptus mannifera*. The manna obtained from this tree is described as having the same medicinal properties as that of the manna-ash of Italy, from which manna has hitherto been obtained : and if the produce be as represented, in quantity and in quality, there cannot be the least doubt that this substance would be well worthy of attention. Many of the trees and shrubs are so covered with a terebinthenous efflorescence, that they stick to the hands. It must be remarked that, though this catalogue of useful substances obtained from Australian vegetables be but limited, it cannot be sup-

posed to include any more than a small portion of those which future and more careful investigation may find in a country so extensive, notwithstanding the uniformity that there is in the vegetable productions of its several latitudes.

The vegetable curiosities of Australia are so numerous, that the mere names of one or two must suffice.

The nettle tree (*urtica gigas*) is a tree of considerable growth, with bright brown bark and large leaves. Every part of it, even the powder upon the trunk, is so acrid, that it well merits the name it has obtained.

The gigantic lily (*doryanthes excelsa*) well merits its name; for though it has all the habits of a lily, it is eighteen or twenty feet high.

The tree grass (*kingia Australis*) which has been met with only about King George's Sound, has very much the appearance of *xanthorrhæa*, only the woody stem is longer, and the flower-stalk is covered with a succession of sheaths.

The pitcher plant (*cephalotus follicularis*) is also a very singular one. The pitchers are not at the ends of the leaves, as in the common pitcher plant, but upon separate stalks.

## CHAPTER V

## ANIMALS

Uniform as is the vegetation of Australia, throughout its whole range of two thousand miles in latitude, as compared with most other regions of the globe, and different as it is from every other region in the leading characteristics of that, it is still more uniform and more singular in its animated inhabitants,—more especially its quadrupeds, and its human beings. With only two exceptions, the four-footed beasts of Australia appear as if they all belonged to one family, and were distinguished from each other only by a larger and a smaller growth; and there are certain peculiarities which render them almost entirely a new race, having but few analogies to those of the parts of the world previously known.

The native dog is the only large quadruped that,

in structure and habits, resembles the quadrupeds of the other parts of the world ; which would lead one to conclude, that though found by Europeans when they first visited the country, both in a wild state, and so far domesticated as to follow the natives, this dog may be an importation. This is rendered the more probable from the similarity that may be traced between the Australian dog, and some dogs that are found in China and the islands inhabited by the Malays. The habits of those people have remained long unchanged : and thus some proa may have touched at, or been driven upon, the shores of New Holland, sufficiently long before that country was known to Europeans, for allowing the dogs, which are a prolific race, to diffuse themselves over the larger island ; and the probability of this is farther increased by the fact, that this dog has not been seen upon Van Diemen's Land, though the native quadrupeds, strictly speaking, have been found nearly the same as in New Holland. This dog bears some resemblance to the larger kinds of shepherd's dog, only the neck is thicker, the whole body of the animal apparently stronger, and the form and expression of the head more resembling those of a cross between the dog and wolf. The Australian dog does not bark, but utters a disagreeable growl : and when he bites, whether in attacking his prey or in fighting, he does not seize hold and keep it, but snaps, like the sheep-dog, the poodle, and some other varieties. His bite is very sharp,

and the colonists have found him very destructive to their flocks, as he runs biting a great number of sheep, and his bite is very difficult to heal. This dog is not very difficult to tame ; but it is not easy to cure him of his natural snappish disposition, which, even when not provoked to it by hunger, he is very apt to exercise upon sheep and other animals. As is the case with the wolves in the northern parts of America, these dogs in their wild state appear to have a great dislike of domestic dogs, and when two or more of them together can set upon one, they kill him without mercy. These dogs are of a reddish colour, with shaggy hair, a bushy tail, and very erect ears. They have a peculiar odour, to which European dogs are far from partial, and which renders them disagreeable when domesticated. The number of their young is about the same as in the European dog, and a cross between the two makes a very serviceable dog in the hunting of emus and kangaroos, to which also the pure breed may be trained if taken young. The dogs which have been seen following the natives, pretty generally, upon the north coast of New Holland, seem to be uniformly of this class, and their attachment to their savage masters appears not to be less than that of the dogs which are attached to man in a state of civilization. This is another reason for believing that the Australian dog is not a wild animal, like the fox, the wolf, or the jackal, but a domestic dog, that has been imported in some such way as that alluded to.

Besides the dog, the only quadruped of New Holland which has been clearly ascertained to produce and rear its young in the same manner as the European quadrupeds, is the rat, which differs from the brown rat of Europe in nothing excepting being a little larger. Perhaps this animal is also an importation, it being well known that the brown rats have been accidentally imported from Norway into different parts of Britain, where they did not previously exist, and in which they have multiplied so rapidly, as to exterminate the native black rats in the course of a few years.

With these exceptions, though the quadrupeds of Australia differ, like those of other regions of the world, in their modes of life and description of food ; though some of them have their teeth so constructed as to feed only on grass, though others have teeth adapted for the gnawing of bark, and though others again have canine teeth, and live upon animal food, they differ in one striking particular from all the quadrupeds of the other parts of the world,—with the exception of one or two genera which are not very extensively diffused, being confined to America and the south-east of Asia. The peculiarity in the Australian quadrupeds, which may be taken as their distinguishing characteristic, is the attachment of a sack or pouch of the cuticle to the abdomen of the female, which, partially in all instances, and entirely in most, covers the teats, and opens anteriorly. Into this pouch the young are received, in a small,

formless, and embryo state, and they remain fixed to the teats till they be perfectly formed, and have acquired a size proportional to the size of the parent animal ; at which time they are detached, and the teat, which had previously been extended, slender, and probably reaching the stomach of the young animal, becomes shortened, so that the young can then suck milky nutriment, like the other mammalia.

The production of these animals, which is one of the most singular and interesting inquiries, and which brings the mystery of animal production nearer to revelation than any other process by which the same purpose is effected, is not yet fully understood : and therefore it is one upon which the greatest caution is necessary—the more so that there is fiction blended with every thing that has been written on the subject, excepting the statement of facts that have been actually noticed by the most careful and the most scientific observers. It is somewhat singular, that a point of so much interest as the time when, and the manner in which, the young of those animals are placed in the external pouch (if they be placed there, and not formed in it *ab origine*), should have not been determined, considering the length of time that Britain has been in possession of New Holland, and the abundance of the animals under consideration that exists there. But it does not appear that the advancement of science, though in this instance it points pretty evidently to practical use, forms an object with those who have the management.

There is thus no encouragement for scientific men in the colony: and those who are at home have not a sufficient number of specimens for enabling them to trace the operation continuously from its commencement. Dissections, and most minute ones, have been made, and careful observations taken, by and in concert with Sir Everard Home; but the result has only shortened the time, without removing the difficulty. In the internal structure of the female, these animals bear so close a resemblance to the mammalia, that it is not to be wondered at, though the earlier naturalists supposed that the young were born in the same manner as other mammalia, and that the pouch was nothing more than a convenient receptacle in which the mother might carry her young ones till they had acquired strength to run. This point, however, has been disproved, and they have been found in the pouch of very minute size, and resembling little lumps or tubercles hanging upon the teats, rather than young animals.

From this peculiarity in their formation the whole class have received the name of *marsupiata*, or pouched animals, without reference to the structure of the teeth, or the habits of the genus or species; and this name is unexceptionable, though not descriptive of the qualities of the animal, any more than horned animals would be of the various genera that have these appendages.

Of the *marsupiata* of New Holland, some form, as it were, the flocks and herds of the country; some

in the place (not of oxen, for they cannot be used for draught, but) of sheep, or rather, perhaps, of deer and antelopes, for they have not yet been domesticated, and they do not appear to be very easily tameable. Others again, though they have more the form of bears and badgers, and are slow and unwieldy in their motions, are something analogous to hares and rabbits—their teeth are adapted for gnawing, and some of them burrow in the earth. A third class, from their habits, and the formation of their canine teeth, may be regarded as the *carnivori*, or wild beasts, which prey upon animals; but of these latter there is none yet discovered of a size and strength to be any way formidable to man. Besides these three general divisions, which, though having no pretensions to an accurate classification, may yet be of some service for popular purposes, there are a few animals whose structure may adapt them for feeding on insects and other small animals. As is the case with the animals of other countries, the flocks of Australia are edible; the smaller animals that live on vegetable food may be applied to the same purpose; the ones that are adapted for feeding on small animals are not relished by Europeans, though sometimes eaten by the natives; and the carnivorous animals, of which the number in any of the species does not appear to be very great, are not at all relished.

KANGAROOS, of which there are many varieties, constitute the grazing animals. Their characters,

and, excepting size and colour, their appearance, is in all the species and varieties nearly the same. The head is small, the mouth destitute of canine teeth, the eyes large, and the ears erect and pointed. The fore-part and fore-legs of the animal are small, the latter being divided into five toes, armed with strong claws. Those extremities are not used in running, though the animal makes use of them when feeding, and also as weapons of defence, for which they are by no means unavailing, either in striking blows, or in holding and hugging their adversaries, after the manner of a bear. Toward the hind quarters the whole of the race get comparatively thick and strong, and the hind legs are long, powerful, and remarkably elastic. The hind feet are singularly formed ; they terminate in three toes, the central one remarkably long, and powerful in its articulation, and armed with a claw, which, in the larger species, is no simple weapon. The outside toe has also a claw of some size, but is not half the length of the middle one. The inside toe is of trifling dimensions, and terminates in two small claws, close together. The bottom of the foot is covered with an elastic substance, more abundant, and yielding more readily to pressure than that found on the foot of almost any other animal. It is hardly to be distinguished from a piece of thick *caoutchouc*, or India rubber. This padding of elastic matter enables the kangaroo not only to stand firm upon a hard and smooth surface, but to alight, after an

immense bound, without any injury to its feet, or concussion to its body. The fore feet are padded in the same manner, though not so abundantly, and when it springs against an ascending surface, they assist in breaking its fall. The claw on the middle toes of the hind foot is the principal fighting weapon of the kangaroo, especially when the enemy comes to close quarters,—the enemy being grasped between the fore legs, and ripped open by a single stroke of this powerful weapon, moved, as it is, by the great muscular strength of the large leg. Some idea of the power of a kangaroo's hind leg may be formed from the fact, that the elasticity of the two legs are sufficient, without any fulcrum, to throw an animal, weighing between two and three hundred weight, a distance of sixty, or, it is said, sometimes even ninety feet, at a single bound, and that the instant the feet touch the ground, the animal is elevated to another leap.

Those who have the best opportunities appear to be much more fond of shooting kangaroos than noticing any thing of their habits; and therefore it is not ascertained whether they attack or not, unless when themselves are in danger. It is clear, however, that their weapons, and mode of using them, are alike dangerous; and, if our information be correct, some that were at one time in Richmond Park evinced so vicious a disposition, that it was necessary to remove them.

The tail is large and very muscular, and the

animal uses it as a counterpoise in hopping, and occasionally as a prop when it is standing erect, so that, in this position, it has a good deal the appearance of a three-footed animal with two hands,—it often using the fore paws as hands, in plucking grass and conveying it to its mouth, or holding a bunch in one hand—even shifting it from one to the other, till it be gradually eaten. The tail of the kangaroo is also a tolerably efficient weapon ; as in hopping about, the tail is swung in all directions, and the stroke of it is sufficient to stun a moderately sized dog, or even to kill him outright.

It is probable that the kangaroo, at least in the large species, has no enemy but the Australian dog ; and therefore its instinctive means of warding off the attacks of dogs are numerous, and, apart from its modes of feeding, constitute the principal parts of its character. These are found by the colonial hunters, to be, in a powerful animal, perfectly adequate to the repelling of a single dog, if he do not come upon the kangaroo by surprise. When chased, there is the stroke of the tail ; and in addition to that, the jerking out of the hind leg, which, if it takes effect, is both a severe blow, and a still severer laceration,—as the powerful articulation of the central toe gives to that a very rapid motion, by means of which it tears while the foot is striking. Then, if the animal turns and stands at bay, the fore feet strike while the enemy is not at close quarters ; and

if he once be grasped, there is the hug and the finishing stroke of the hinder foot. Even in water the kangaroo is formidable, and it seems to know that; for, sorely pressed, it takes to the water, if there be water near, and instead of merely attempting to escape by swimming, as is the case with the stag (though he too sometimes stands at bay in water), it is almost uniformly in order to keep them at bay, which it does by striking at the dogs, or by seizing them and thrusting them under water. Thus, even from the little that is known of the habits of those singular animals, we have in the larger ones a means of defence as singular as their form is, compared with that of European animals. Of these they certainly approximate nearer to the stag than those of any other; though the form of the animal makes the means of putting the instinct in execution quite different.

Kangaroo hunting is one of the Australian sports; and, in open places, where the surface is not intersected with deep gullies, is successful: the dogs must, however, be trained to the sport, and if the kangaroo be large, there must be several of them. If the country be intersected and contain rocks or brushes of underwood, the chase has little chance of success, as the kangaroo bounds over those obstacles, while the dogs are obliged to make a circuit.

Several species even of large kangaroos have been enumerated by naturalists, and are also named by the colonists. But, as the naturalists may have seen

the animals of the same species in different stages of their growth, or with accidental differences of colour or size, the distinctions made cannot be regarded as conveying perfect information. The species mentioned by the colonists are : the forest kangaroo, which is of an ashen grey colour, with a slight tinge of brown, and darker on the under part of the body. It gets the name of forest kangaroo, from being chiefly found on those dry places, partially covered with trees, to which the name of forest is given—the tangled woody surface in the latitude of Sydney being generally composed of small and stunted trees, and being called bush, or brush, and not forest. Another, which is styled the mountain kangaroo, is black, with shaggy hair, and found upon the hills. There is a third, the red kangaroo, so called from its colour, which is chiefly found on the plains, or more open forests. Its fur is smooth and soft. In the interior a kangaroo has been met with, with fur so long and soft, as to get the name of the woolly kangaroo. These are all animals of considerable size, being found of the weight of between two and three hundred pounds ; and they are all sought after for food ; while their skins, in some places of the country, more especially in the south-western parts of New Holland, and in Van Diemen's Land, are used by the native inhabitants for cloaks, while the colonists dress and prepare them as leather. When used for food, the fore part of the kangaroo is but little regarded ; the great mass of the muscles being

about the loins and the hind quarters. They are remarkably destitute of fat, except, at certain seasons, a portion near the insertion of the tail. The tail makes excellent soup ; and the flesh of the animal is generally chopped into small pieces, and stewed with the addition of a quantity of pork,—the dish so prepared being locally termed “ a steamer,” and being by no means despicable food.

Among the rocky and broken places, and on the more sterile islands, there are several species of much smaller kangaroos, which are seldom found exceeding sixty pounds in weight, and often falling far short of that. The delicacy of their flesh as food, is said to increase as the size of the species or the variety diminishes ; but on this, as well as most other points respecting the natural history of the country, information is vague.

The kangaroos produce only one young at a time, which, after it has been for some time detached from the nipple in the pouch of the mother, occasionally leaves that receptacle to browse the same herbage on which she feeds. In cases of alarm, however, it retreats to the maternal pouch ; and there are instances mentioned, in which a female, thus loaded, on being closely pursued, has disburthened herself of her young one ; but these instances of want of maternal affection are very rare—and probably not very well authenticated.

The *Kangaroo rat (potorus)* though it closely resembles the kangaroo in its general appearance, and

in its habits and the manner of its feeding, yet differs from it in having canine teeth in the upper jaw. It is about the size of a small rabbit, and lodges in hollow trees; but though by having the canine teeth in the upper jaw, it makes one more approach toward carnivorous animals than the kangaroo, it does not appear to live upon animal food of any description. Its habits, however, are not much known.

Of the animals whose teeth more particularly adapt them for gnawing bark, the most remarkable is the *Koala*, to which the colonists give the name of the sloth. It is an animal about the size of an ordinary dog, covered with beautiful long fur, of a light mouse grey colour. Its nose is naked and black, eyes small, and of a mild expression; the fore-feet are divided into five toes, two of which act against the other three, and thereby adapt it well for climbing trees, which it is very prone to do, eating not merely the leaves but the bark, of the eucalyptus and other species on which it is found. In the formation of its mouth, it very much resembles a rabbit, having a blank between the cutting teeth and the grinders, and being destitute of canine teeth. It appears to live exclusively upon vegetables, and can subsist upon them either in a green or dried state. The koala is a most gentle animal, easily tamed, and very willing to remain where it is fed; but it is slow in its motions, and of very little use.

The *Wombat* (*phascolomys*) has a considerable re-

semblance to the koala, only instead of climbing trees like that animal, it burrows in the earth. Like that animal it is without canine teeth, and lives upon vegetables, either green or withered. It has much similarity to the other, only it is of a brownish cinnamon colour, mixed with white, and the fur not quite so long. It is about the same size, and is equally gentle in its disposition, allowing itself to be taken and carried without resistance. It burrows very rapidly, so that it is not very frequently met with. The colonists call it the bear, from a slight resemblance in its form to that of a small brown bear ; but it is in no way allied to the bear, either in its anatomical structure, or in its habits. A wombat, which Sir Everard Home had for some time in this country, was fed upon hay during the winter season.

These are the chief animals which, from their structure, may be presumed to live entirely upon vegetables.

There is another class to which the colonists give the names of opossums, squirrels, flying-opossums, flying-foxes, and badgers, though they have no apparent relation to any of these animals. Of the animals of this description, some are furnished with canine teeth only in the upper jaw, while others have one on each side of the under jaw in addition. As is the case with most of the other animals of Australia, their habits are but little known ; but they are supposed to feed upon insects and small lizards, as well as upon vegetable matter ; though the

fact has not been ascertained. The opossums of the colonists have been arranged by naturalists under the genera of *phalangista*, (from the toes of the hind feet being united by a membrane into one phalaux or mass); and *petaurista*, from having a membrane extended from the fore to the hind legs, by means of which they can sustain themselves for a considerable distance in the air, so as to leap from tree to tree when the branches are not too far asunder. Those which are without the membranous wings, are generally styled opossums. They have prehensile tails, by which they can lay hold of the trees, and swing from branch to branch. There are some animals found in the Asiatic isles which naturalists have classed in the same genus with the opossums of Australia; but they differ from the Australian species in having the tails naked, whereas those of Australia have them covered with hair. These animals are about the size of a polecat, and like that, they have, at least in some of the species, an odour which is not very agreeable. They have sometimes been styled bears and foxes, to which they have no more title than they have to that of opossums, as being kindred to the pouched opossums of America. The species, or perhaps the genus, furnished with the membranous wing between the extremities, which answers as a parachute in preventing their fall, differ from the others chiefly in having the tail not prehensile, though it be hairy like the others, and in some species long and bushy, which

has led the colonists to call some of them flying-squirrels, and others flying-foxes. Of these, some are covered with a beautiful fur, which is used as a substitute for beaver in the manufacture of hats ; and the furs of the flying-squirrel as well as of the koala, and some other Australian animals, form a branch of exportation to China, which by due cultivation might be greatly extended. These animals are sometimes eaten ; but they have a rank flavour, though that is said to be in part removed by soaking them a considerable time in water.

The *Paramelus*, to which the colonists sometimes give the name of badgers, make a nearer approach to carnivorous animals than those which have been now mentioned. They have long canine teeth in each jaw ; the head, very long, the fore feet well adapted for burrowing, and the tails not prehensile. One, which is greyish, brown above, and white on the belly, is called the long-nosed pouched badger, and another, (though probably the same species, only of a different habit) is called the fat-pouched badger ; these burrow in the ground, and are occasionally eaten. Many of the animals of New Holland lodge themselves in hollow trees, for which the decay of the central part of the trees, or the destruction of them by the white ants, gives great facility ; and as they generally feed during the night, moonlight nights are the times chosen for hunting them. They are commonly driven by dogs to a retreat in some tree, and taken there. The time at which the kangaroos feed is principally in the morning, when

the dew is upon the grass ; and when the great heat of the day sets in, they retreat to the thicket or bush, where, on account of the brown colour of the foliage, they are not easily discovered.

The Australian animals that may strictly speaking be considered as wild beasts, that is, as subsisting on animal food, form a genus which is peculiar to Australia, and to which, in consequence of their rough appearance, the name of *dasyuris* has been given. They have vulgarly been called bears, wolves, hyænas, tigers, and even devils, according to the fancy of those by whom they have been seen. There is much the same confusion in the printed accounts of this genus as in those of the other genera of New Holland ; and it is impossible to say whether different writers may or may not allude to the same animal when they use different names, or to different animals when they use the same one.

Of *dasyuri* there seem to be two species, about the size of pretty large dogs, which are savage in their dispositions, voracious in their appetites, and disposed to prey upon smaller animals, as well as to gorge themselves upon putrid remains of seals and fish, as well as land animals. Those two species are generally represented as being confined to Van Diemen's Land as the native dog is to New Holland, though some of the accounts mention that one of them has been found in the country westward of the Blue Mountains, where it has ridiculously enough got the name of the cat : and one recent writer has armed it with retractile claws, in order to

make it quite a mouser. No tolerable description of a specimen found in this locality has been published: and therefore the probability is, that it may have been one of the smaller dasyuri, which the colonists sometimes style polecats, or weasels; and as for the retractile claws of the cat, it may be presumed to have just as much title to them as another of the genus, to which it is represented as belonging, has to the appellation of the devil.

The *dog-faced dasyuris (cynocephalus)* is an animal about the size of a wolf, strongly made, with sharp and crooked claws on the feet, the fur not very long, except on the cheeks and under the ears, and the tail compressed and pointed. The tail is long and tapering; the ears resemble those of the bear much more than those of the dog; the upper lip is whiskered with a few scattered, but very strong bristles, and the whole expression of the animal is disagreeable. The ground colour is a dull brownish yellow, with darker stripes across the back, like the marking of the zebra; and hence this animal has got the name of zeberine. Among the colonists, it is generally called the hyæna, or the hyæna-opossum, though it has not the slightest resemblance to the one or the other of these animals; and some naturalists have referred it to a separate genus, under the name of *thylacinus cynocephalus*. It is found on the sea shore, where it preys upon the remains of animals, and probably also swims after fish. It is also found in the inland parts of Van

Diemen's Land, and often commits depredations upon the lambs at the sheep farms, and sometimes too upon the poultry yards, though it is a solitary animal, and does not approach the thickly settled parts of the country.

The female is understood to produce five or six in a litter ; and the teats are said to be partly within the abdominal pouch, and partly exposed ; so that of all the marsupiata, this, and, indeed, the genus with which we have classed it, makes the nearest approach to the mammalia of other countries.

The *bear opossum*, or devil (*dasyurus ursinus*), is about the same size with the former, or probably a little larger. The head has some resemblance to that of an otter ; but it is scaly, ugly, and out of proportion to the body. The teeth are irregular, but very formidable. The body is covered with shaggy hair, of a dark colour, approaching to a dirty black. The tail and legs, are short ; and the latter armed with strong crooked claws. It lives among rocky mountains, and has the same propensities, and does the same mischief, as the former species, only it is more clumsy in its shape, and less active in its motions.

There are various smaller species of *dasyuris*, some of them spotted, and others of a grey or ashen colour. The former are uniformly spotted with white, and vary in the ground colour, so that they are, probably, all of the same species. They are, generally, about the size of cats ; have the habits of

polecats, in plundering hen-roosts; and get the name of cats, polecats, or weasels, according to the fancy of the colonists. It is more than probable, that the species found to the west of the Blue Mountains belongs to one of these genera, and not to either of the larger ones, of which, out of Van Diemen's Land, there is no authenticated account.

The large species of bat, to which Linnaeus gives the name of *vampyrus*, is found in many parts of New Holland. Large flights of those animals were met with by Captain King and his people, in the tropical parts of that country; and they are also met with in the latitude of Port Jackson, where they are sometimes denominated flying-foxes. They are not described as differing from the vampire of other countries; though, unlike most bats, they can fly right against the sun, without inconvenience.

Singular as some of the animals already mentioned are, in their formation, and different as they are, in their economy and habits, from the animals of other countries, there remain two to be mentioned which are yet more singular than any or than all of the others. These are the *ornithorhynchi*, which appear to blend several of the characters of the quadruped and the bird, and, in one of the species, even of the fish. Two species of this remarkable genus have been discovered, the *paradoxus*, and the *ericinius*.

The *ornithorhynchus paradoxus*, is a four-footed animal, terminating at the head in a bill, not unlike

that of a duck; and at the other end in a tail not very unlike that of the seal.

The length of the whole animal, in full grown specimens, is about twenty inches, of which the bill takes up two and a half, and the tail more than four inches. The body is compressed, and rather thinner towards the shoulders than any other part. It has four short legs, which spread out, not unlike those of the tortoise; and the whole animal has a very singular appearance. The upper mandible of the bill, which is flat on the top, and regularly bevelled off at the edges, is perforated near its extremity by two small nostrils; and a strong and dark-coloured membrane, with which the horny part of the bill is covered, is returned back, in a kind of ruff, at the root of the bill. At the point, which is blunt, and not much unlike that of a duck, the inner surfaces of both mandibles are nearly smooth; but, towards the root, they are furnished with horny protuberances, that have some resemblance to teeth; and there are two similar teeth upon the tongue, near its root.

The eyes are very small, near to each other, and also to the ruff which marks the insertion of the bill; and the ears are merely two moderately sized slits, just behind the eyes. The head of the animal is small in proportion to its body, and, except that the eyes are smaller, and nearer each other, it might, when the rest of the body is concealed, be easily mistaken for the head of a duck. The feet are divided

into five toes, which terminate in strong claws, hollow on their under surfaces, as if adapted for burrowing. The feet are webbed with a strong membrane, of the same colour and texture as that which forms the ruff; and this membrane, more especially on the fore feet, is so constructed that the animal can at pleasure extend it considerably beyond the claws, and thus convert the feet into swimming-paws of a very efficient description. The upper part of the body is dark brown, which gradually lightens to a silver grey towards the belly, and the colour of the female is lighter than that of the male. The body is covered with hair, which is of two sorts—a very soft and short fur underneath, mixed with longer hairs more thinly scattered, and flattened so as to have the appearance of a small feather, for the greater part of their length towards the points. These flat hairs are shining, and give a curious streaky appearance to the animal.

The *paradoxa* is found in the fresh water lakes, or upon their borders; and when in the water it seldom comes to the surface, except for the purpose of respiration. It blows in a manner not unlike the turtle, to which, indeed, taken altogether, it has more resemblance than to most other animals, though between them the difference is abundantly great. Upon land, it contracts the membranous webs of its feet, and spreads them when it swims. When on land, its pace is much the same with that of a land tortoise. Its velocity in the water has not been par-

ticularly marked. Of its food and its habits but little is known. It is, indeed, seldom met with ; and when specimens are wanted, they are chiefly procured from the natives.

The *ornithorhynchus eracinus*, has a good deal of resemblance to the former species, in its general form ; but, in their localities, and in most external particulars, they are quite different.

The bill is much more slender than that of the former species ; the head is more thick and round, and, when the animal is seen alive, a tongue, of considerable length, and curved, is protruded, in the same manner as in those animals that feed upon small insects. The feet of this species are not webbed, but armed with strong and powerful claws, remarkably well adapted for burrowing in the earth, in which it can bury itself in a very short time, and to which it can in an instant cling so firmly as not to be lifted without a considerable effort. The lifting of it is not, indeed, a very pleasant process : for, over the more slender hair, there are scattered, instead of the feather-like bristles of the other, very formidable spines or quills, bearing some resemblance to those of the porcupine, and very strong, stiff, and sharply pointed, so that it is difficult to lift even a stuffed specimen, when laid on the belly, without being pretty severely wounded. Like the quills of the porcupine, those of this animal are variegated, which gives it, when the bill is not taken into consideration, some resemblance to a porcupine, only the spines are not so

long in proportion to the size of the animal. Not the quills merely, but the hairs of this animal are tubular. The tail of this species, which is as much armed with spines as any part of the body, is short, and turned upward, till the spines stand about perpendicular. The specimens that we have seen were thicker, in proportion, than those of the *paradoxus*, but not so long. Neither they nor the accounts are, however, perfectly conclusive, as nothing is known of their age or relative condition. It is said that in the former species the males are without fat between the skin and the muscles, while the females have a considerable covering of that substance.

These appear to be the only species of these most singular animals that have been discovered. Another has, indeed, been figured, under the name of "*ornithorhynchus rufus*," or the "red platypus," but the figure itself is conclusive evidence of its having been copied from a badly conditioned or badly stuffed specimen of the *paradoxus*.

On the inside of the hind legs of the *ornithorhynchus paradoxus*, and we believe also of the other species, there are two strong spurs, which are moveable by an articulation, and directed inwards with a slight curvature upwards. It is said that these spurs, in the live animal, inject a poison into any animal they may happen to wound; but that wants confirmation.

It is also said, that there are on the hind legs of the females natural sockets, which fit these claws; but that also wants confirmation. Indeed, though

several specimens have been carefully examined, nothing is known of the habits of either of the species, farther than their locality and their locomotion ; so that any conclusion that can be arrived at with regard to the particular class of other animals, to which they are most nearly related, rests upon inferences drawn from their anatomical structure ; and, though some specimens have been very carefully dissected, the number has been too few for the establishment of even the fact, as to whether they ought to be classed with the mammalia, or with animals produced from eggs.

In the specimens hitherto dissected in this country, no indication has been found of teats, or any apparatus for suckling, on the female, though a German naturalist says he discovered them in a specimen which he obtained from the French naturalists. Accordingly, much solicitude has been evinced by some of the most eminent physiologists in this country, to obtain specimens of the female, preserved in spirits ; but hitherto only one has been sent home, and that too young for affording any satisfactory solution of the problem. According to some accounts, the *ornithorhynchi* lay eggs, and they allege having found them deposited in holes near the fresh-water lakes, in the same manner as the turtle deposit their eggs near the sea. The structure of the ovaries certainly resembles that of the oviparous animals more than that of the mammalia ; but quadruped, reptile, and bird, are so curiously blended together in

this singular genus, that it is extremely difficult, or rather altogether impossible, to determine which character shall predominate, in any particular that has not been subjected to actual examination.

By no means the least curious part of these animals, more especially the paradoxus, is the membrane with which the bill is covered, and especially the margin of that membrane.

The eyes of the animal are so minute, and placed so far upwards in the head, that they can be of little use to it in the discovery of its food; indeed, they can be of none when it burrows in the mud under water. To compensate for this, the bill is, by means of this membrane, made an organ of feeling, in the same manner as the membranous wings and ears of the bat, the nose of the mole, the whiskers of animals that prey in the dark, the feelers of insects, and the bills of the duck tribe. This is effected by means of a nervous tissue, thickly diffused through the membrane, and more especially at its extremities: and, from the abundance of those nerves, there is no doubt that the sense of touch in this singular bill is as acute as that in the most delicate finger.

The BIRDS of Australia differ less, in their general character, from those of other countries, than the quadrupeds. This, more especially in birds able to remain long upon the wing, may be supposed, because these can easily transport themselves. Parrots, and parroquets, are very numerous, so much so as to be a perfect nuisance in the orchards of the colonists,

from which they can hardly be driven by any means. Many varieties of them are remarkable for the beauty of their plumage. Pigeons are also numerous, and of many varieties, and some of the bronze-coloured ones are very handsome birds. As, however, they have no remarkable qualities, different from those of the birds of other countries, a description of them would not convey information strictly and exclusively Australian. There are, however, two birds peculiar to Australia, which will require a short notice, the more so that one of them was, for many ages, used as an ironical name for any thing that it was accounted in vain to hope. These birds are, the emu, which has some resemblance to the ostrich, and the black swan, which differs from the common swan chiefly in colour.

Of the *emu* (*rhea Australis*) it is not necessary to give a minute description, as it may be found in most collections of foreign birds.

When full grown, it is of large size, and some, standing erect, are near seven feet high. The body of the emu is clumsy, the neck long, and the bill pointed, but without any tongue. The feathers have something the appearance of hair, and the wings are little flaps, by means of which the animal rows itself in the air, as it strides along the earth upon its gigantic legs. Even in this country, the emu is a lively animal—it frisks and dances, in which operation it is not very unlike a woolly cushion on the top of two poles. The eggs of the emu are large,

nearly the size and shape of those of the ostrich, but of a sea-green colour. They are edible, and during the season the natives search carefully for them. Each female lays five or six. The emu, like all the rest of the ostrich tribe, is a stupid bird, and, like them, it runs with amazing swiftness, so much so that it can hardly be run down, unless by the swiftest dogs, and by them only on open pastures. The only means of defence possessed by the emu is kicking with its legs, and the blow of these is said to be so powerful as to stun a dog, or even fracture a man's leg. Dogs must be trained to hunt the emu, as they do not naturally run at it, and as they must be taught to follow it not immediately in the rear, in which position it would defeat them by kicking, but alongside, so as to turn and seize it in the body. As the emu is without wings, the large muscles that give motion to these in flying birds, and make the breast the most fleshy part, are wanting; and thus, the only portions used for food are the legs, or rather the thighs. The muscles of these resemble beef, more than the muscles of birds. In a full grown animal, they are large and heavy; but in these the taste is rather harsh: the young birds are more tender and delicate. When in the best condition, there is an immense quantity of fat upon the rump of the emu, and, in this respect, as well as in the comparative inutility to man of all but the hind quarters, it resembles the kangaroo. The emu, as well as the kangaroo, retires before the progress of

colonization, and, therefore, it is probable that a general cultivation of the country would lead to the extinction of both. Emus are not solitary birds, but found in flocks, though these flocks are never very numerous.

The emu feeds indiscriminately upon grass, flowers, berries, and seeds. It bears the climate of England ; but can be regarded as little else than a curiosity.

The *black swan* (*cygnus atratus*) is most abundant in Van Diemen's Land, and the southern parts of New Holland, where, more especially in the former place, it is found in very large flocks. The black swan was first found at Swan, or Black Swan River, where the new British colony is in the progress of establishment. Vlaming, a Dutch navigator, who, in 1697, sailed forty or fifty miles up the river in his boat, was the discoverer, but the existence of the swan was, for a considerable number of years, treated as a fable, and the discovery of the country was neglected, until it was again seen by the French squadron in the beginning of the present century ; and they do not appear to have been so adventurous as Vlaming, for no report was made of the capability of the country for supporting a colony, until its recent examination by Captain Stirling. Thus the claim which the French are rumoured to have set up of priority to the English on that coast, is without foundation ; the real claimants, both in priority of date and extent of survey, being the Dutch.

The black swan is so similar to the white one, both in its appearance (colour excepted) and its habits, that no particular account of it is required. When Captain Flinders first explored the coast of Van Diemen's Land, he found black swans in immense flocks, in the estuaries both of the Tamar and Derwent ; and perhaps his description of their manners, so far as it goes, is the most accurate of any that has been given :—

“ Out of the flocks of black swans,” says Captain Flinders, “ from one-fifth to one-tenth of them were unable to fly ; and since the same thing is found to happen in the months of January and May, as well as in October, it is probably so at all seasons of the year. These birds are endowed with a considerable portion of sagacity : they cannot dive, but have a method of immersing so deep in the water, as to render their bodies nearly invisible, and thus frequently to avoid detection. In chase, their plan was to gain the wind upon our little boat, and they generally succeeded, when the breeze was strong, and sometimes escaped from our shot also.”

Those swans are exceedingly numerous upon the lakes of Van Diemen's Land, between the sources of the northern and southern rivers, and they are accompanied by an immense number of ducks and other aquatic birds : in the settled districts they are not quite so numerous, though they are not much afraid at the presence of man.

The black swan lives and breeds in England without any difficulty, and the male is of a bold character,

and very much disposed to shew fight. Among other places, they are found at the Duke of Devonshire's villa, at Chiswick, where the male not only claims a sort of lordship of the canal, but, especially when there are young, stands sentinel on the banks, and marches in the direction of an enemy whenever one appears. His march is slow, and somewhat awkward, but he raises his feathers somewhat in the manner of a turkey-cock, and comes hissing on with no unsoldierlike appearance. Besides those already mentioned, there are very many birds in Australia, which are interesting for their beauty, or for their value as food. Of the beautiful birds, the *menura superba* is, perhaps, the most interesting. It has some resemblance to the bird of paradise in its tail, though in the rest of the body, it is more like the pheasant. The general colour of the body is a dusky grey, but the throat and points of the wings are of a bronze colour. The legs, toes, and claws, which are all large, in proportion to the size of the bird, are dark, with a bluish shade of colour. The body is about the size of a common hen, but the form is much more elegant. The most remarkable characteristic about it, is the formation of the tail, which, in the male, is very peculiar, as well as very spreading. The two principal feathers have a double curvature, which gives them something the shape of a lyre ; they are strong, and nearly double the length of the bird. Toward the inside they are of a brilliant pearl colour, and on the outsides they have scollopings, which extend nearly three-fourths of the breadth, of a bril-

liant brownish red, with a lighter portion in the middle of each scollop; and those parts of the points that curve downwards are nearly of the same colour with the body. Two of these feathers rise perpendicularly to nearly half the height of the tail, and they then bend in graceful curves so as to cross behind each of the feathers formerly mentioned, and bend downwards, tapering to a point on the outsides. The remaining feathers are remarkable for their thin appearance, as well as for the length of the quills, and the slenderness and distance of the feathery fibres; they make the rest of the tail look as if it were caught in a net, or surrounded by cobwebs. As is the case in most species of ornamented birds, this formation of the tail is peculiar to the male; the tail of the female being composed of twelve feathers, nearly the same shape. These birds frequent the retired parts of the interior, more especially those to which access is difficult. They run with great rapidity, but the size and unwieldiness of the tail impede them in flying. They are birds of song, or rather a species of mocking birds; for they get to the tops of eminences in the early part of the day, scrape the ground for a little while, like dunghill fowls, and then, standing erect, and with the tail spread, they imitate in succession the notes of all the other birds. Their retreat at other times is in the valleys or lower grounds, among the brushes. They are not very frequently met with. Connected with this bird is a nest of great bulk, seven feet in diameter. It has been thought to give hopes that

the "roc" of the Arabian Tales would be forthcoming, as well as the black swan; but the only tenant hitherto found is a small hawk, apparently an interloper.

REPTILES are very abundant in Australia. In the tropical rivers crocodiles are found, and lizards are plentiful in all parts of the country. The *iguanas* grow to the length of four feet; they live upon birds and small animals; and they are eaten by the natives. A very singular species of lizard (*chlamydosaurus Kingii*) was found by Mr. Cunningham at Port Nelson, on the north coast. Mr. Cunningham's description of it is the fittest to quote, because it is the shortest, and he saw it alive: "I secured," says Mr. Cunningham, "a lizard of extraordinary appearance, which had perched itself upon the stem of a small decayed tree. It had a curious crenated membrane, like a ruff or tippet, round its neck, covering its shoulders: and when expanded, which it was enabled to do by means of transverse slender cartilages, spreads five inches, in form of an open umbrella. I regret that my eagerness to secure so interesting an animal did not allow sufficient time to allow the lizard to shew, by its alarm or irritability, how far it depended upon, or what use it made of, this extraordinary membrane when its life was threatened. Its head was rather large, and the eyes, whilst living, rather prominent; its tongue, although biped, was short and thick, and appeared to be tubular."

*Snakes* are abundant in many places of Australia.

Of those in New Holland, several species, more especially the brown and the black, are venomous, though not perhaps so much so as those of some other countries. Those in Van Diemen's Land, if venomous at all, are certainly less so than those of New Holland, which might be inferred from the climate being colder. One of the Van Diemen's Land snakes has so much the appearance of charred wood that it can scarcely be distinguished from the burnt sticks that are left by the natives where they have had their fires, or where they have burnt the country, as is their practice when the grass is dry and withered.

The *Frog* most generally met with in Australia, especially in the colony of New South Wales, is much more elegant in its appearance than the frogs generally met with. Its general colour is a bright pale green, very elegantly striped and clouded with yellow, that has a silvery lustre.

INSECTS are exceedingly numerous, so much so, as to occasion a great deal of annoyance. Sand flies and mosquitoes swarm upon the low and sultry shores, so that in such situations it is impossible to sleep. Flies, resembling the common blue-bottle, attack provisions, and even clothes, for the purpose of depositing their eggs, which in the warm season become animated in a short time. The flies are sometimes so thick that the people are unable to drive them away from their faces. Ants are very abundant, and the white ones especially are very destruc-

tive to timber, both when it is growing in the tree, and when it is converted into posts. With the exception of some pines, they attack most of the native timber; and it is no uncommon thing to find beams of eucalyptus consumed to powder, while the pine boarding is untouched. They often eat the standing trees to within a small ring round the circumference, and in posts they sometimes leave little but the paint with which they are covered. The white ant, in all probability, owes its colour to its incapacity of enduring the light. So contrary to their nature is the influence of the sun, that when they have exhausted one tree, they build an archway of earth all the way to the next, to protect them during their migration. How the engineer contrives to discover the new tree, and mark out the line of this work for them, has not been observed. There are many species of ants in New Holland, some of them of so large a size that their bites are as painful as the stings of hornets. Others again erect for themselves nests, or hills, of a conical shape, and so large that the earlier navigators, who did not land and examine them, describe them as the huts of the natives. Those castle-building ants are most plentiful upon the intertropical coasts. Caterpillars are sometimes very destructive, especially if the winter has been more than usually mild. They cover every thing, and move on in a massy line, something in the same manner as locusts. The progress of these destructive insects is very singular: before them

may be seen a green and fertile field, while behind them all is a red desert, except any harsh and bitter plant which they do not relish. In short, the destruction that they occasion is complete; and when they do visit a farm, the hopes of the husbandman are entirely blasted. Small rivulets are little interruption to their progress: they drop on the water, and float obliquely to the opposite side, where they begin their ravages anew.

Many other insects might be mentioned; but these are the principal ones that are an annoyance to the colonists.

SEA ANIMALS abound. The common black whale frequents the southern parts, and various species of the spermaceti whale, and of the dolphin and grampus, are found on most of the shores. Turtle have been mentioned as plentiful on the tropical shores,—both the green turtle, which is most esteemed for food, and the hawksbill, which produces the finest shell. The shell of the last might be obtained in great quantity, as an article of commerce, both with Europe and with China; and if the colony at Fort Dundas, or Melville Island, should ever extend to any thing beyond a mere station, the articles of traffic which they might find it most eligible and profitable to exchange with foreign nations, might be tortoise-shell and trepang, for both of which they would find a ready market in China, or even at Macassar.

On the shores of Van Diemen's Land, the southern

coast of New Holland, and on the islands along the latter, more especially those towards Bass's Straits, seals, both of the hairy description and of those whose skins are valuable as furs, are abundant ; and though the number at any one place be soon exhausted, yet the places are so many, that a seal fishery to a considerable extent might, with proper management, be constantly carried on.

The sea fish are very numerous ; and the rivers are, in general, well supplied. The fish in the inland rivers, Macquarie and Lachlan, are very numerous, and of a very large size. The following is Mr. Oxley's account of some which were caught in the Lachlan :—

“ One man in less than an hour caught eighteen large fish, one of which was a curiosity, from its immense size, and the beauty of its colours. In shape and general form, it most resembled a cod ; but was speckled over with brown, blue, and yellow spots, like a leopard's skin ; its gills and belly a clear white, the tail and fins a dark brown. It weighed, entire, seventy pounds ; and without the entrails, sixty-six pounds. It is somewhat singular, that in none of these fish is any thing found in the stomach, except occasionally a shrimp or two. The dimensions of this fish were as follow :—

	Feet.	Inches.
“ Length from the nose to the tail	3	5
Circumference round the shoulders	2	6
Fin to fin over the back	-	1
		5

	Feet.	Inches.
Circumference near the anus	1	9
Breadth of the tail	1	1½
Circumference of the mouth opened	1	6
Depth of the swallow	1	0"

Mr. Oxley mentions, that the other fish which were caught in the Lachlan were of the same species with this, and all of a weight exceeding fifteen pounds. Some species of flat-fish grow to an immense size on the Australian shores. At Percy Island, Captain King's people caught, with a seine, some sting-rays, one of which measured twelve feet across, and its liver nearly filled a small pork barrel ; and Captain Cook caught in Botany Bay, some of the same species of fish, each of which weighed three hundred and thirty-six pounds. Perhaps one reason for the immense size of those fish close in shore, may be the dislike the natives have to them. Though the food of these people upon the coasts be, generally speaking, fish, in the spearing of which they are very dexterous, and of which they must destroy great numbers, they will rather fast than eat any description of ray, even though they have no objection to eat putrid seals.

Some of the fish on the Australian shores are remarkable for their beauty. Of these, one of the most conspicuous is a species of crab. It has a small body, and long thin legs, and is therefore of little use as food ; but the shell with which it is covered is as brilliant as can well be imagined. The

under part is of a pure white, having a gloss and polish surpassing the finest enamel ; and the brilliant white extends also over great part of the legs on their under sides, though it passes into patches of an intensely brilliant azure towards the extremities. The upper part of the body is clouded with various shades of bronze colour, some of the tints almost black, and others of a very brilliant golden orange, while the different patches are so exquisitely blended, as to give the whole an appearance of semi-transparency. The greater part of the colour on the upper surface of the legs is of the azure already mentioned ; and, both in the richness of the colour and in the exquisite polish of the surface, it is hardly possible to imagine a more brilliant object than this little shell-fish.

Some of the smaller fish on the Australian shores are singular in their appearance and habits. One is a small fish, about the size of the little finger, with a double set of pectoral fins : short ones, which answer for swimming, and longer ones, which are jointed, and which, when the sea leaves it dry, it makes use of as feet, and, by means of their elasticity, leaps a considerable way, both upwards and laterally. The other is a mud-fish, found on the north-west coast, which is about nine inches in length, and buries itself under the mud with more rapidity than any other fish that is known.

The shores, and even the fresh-water rivers, contain numbers of esculent shell fish, which, with fern

root, form, when they are in season, the principal food of the natives.

Such are a few points on the natural history of Australia, excepting that of the native inhabitants : they are mere points, because any thing else would have been inconsistent with the size of this volume, and the numerous and varied subjects that properly come within its range. Few and unscientific as they are, however, they will serve to show that the natural history of those vast islands, and the surrounding seas, is fraught with much, both of curiosity and utility.

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*Note.*—In treating of the natural history of Australia, however trivial the notice may be, it is impossible to avoid a certain feeling of national regret, bordering even upon a stronger sensation. England claims Australia as peculiarly hers for the purpose of colonization ; and it is mortifying to think, that for any one species of information respecting it, an Englishman should need to borrow of foreigners,—and borrow of them, too, not only when Englishmen abroad were in possession of more accurate and valuable information than any foreigner, but when that was actually brought to the country, in hands of the original inquirers, who were then in the prime and vigour of life. Perhaps there never was an expedition of discovery—certainly there never was so small an expedition—so judiciously furnished with scientific men, as that which sailed under Cap-

tain, Flinders in July, 1801. Mr. Robert Brown was at once one of the most enthusiastic and the most profound students of nature, not in botany merely, but in natural history generally ; and as a scientific dissector and painter, Mr. Ferdinand Bauer was quite unrivalled, even by his brother Francis, who is still resident in this country, and whose dissections for Sir Everard Home, and drawings for Lambert's magnificent work on pines, place him at the head of living artists in natural history, both in science and in manual execution.

The loss upon the Wreck Reef of the vessel in which Captain Flinders was returning, and his detention in the Mauritius, were unfortunate, both for the progress of maritime discovery, and for the personal advantage of that enterprising officer ; but there is often a good arising out of that which at the time seems unmixed evil ; and, had it been properly turned to account, that would have been the case in the instance alluded to. During the voyage, Messrs. Brown and Bauer had made extensive collections, both in botany and in natural history. But during their eighteen months residence at Port Jackson, they were enabled so to augment their stock, as to bring with them complete notes for the accurate delineation and description of more than seven thousand species, the publication of which, in a style of corresponding elegance, would have been at once the most magnificent in natural history that ever arose out of a single expedition, and a work not merely worthy of, but

highly honourable to the character of Britain, as the nation foremost in enterprise.

Of the value of this work, if completed, scientific men can easily form an estimate, when they recollect the impression made over the scientific world by the appearance of the fragment of Brown's "*Prodromus*" which is now before the public ; and it will be heard with bitterness that that fragment is all that the world is likely to receive. This splendid mass of materials, after they had been procured at the public expense, and at an imminent risk of health and life to the procurers, were safely deposited in London ; and (will it be believed ?) they are now scattered to the winds, or consuming by the moth.

In the first instance, the Admiralty, under whose charge we believe the matter was, selected, out of the seven thousand, ten subjects, of which outline engravings were published in the *Atlas to Captain Flinders's account of his voyage*. It is true that they employed Mr. Bauer for three years, in making drawings of a number of those subjects, and we believe it is also true that these drawings have sometimes been shown, as pretty things to look at, in a lady's drawing room ; but that any one man of science, official or non-official, ever got or gets access to them, does not appear.

Nor is this is the worst of the matter. The originals are gone. Mr. Bauer having projected a splendid work himself, and produced three numbers of it, in a style superior to any other we have met with, found

the liberality of this country, which was purchasing, by the thousand, the inferior rubbish of persons who had never seen the subjects which they drew and described, patronized his work to the full extent of twenty copies, retired to his native country of Austria; and, having met with no better success there in his publications, sat down to console himself with the truth and brilliance of his own pencil. Disappointment and intense application wasted him away; and as an artist dying in Austria, his collections could not be sold out of the country; but were valued by Government officers, and purchased for the Imperial Museum at Vienna: so that the best materials for forming a natural history of a British colony, though originally procured at British expense, and brought safely to the country, are now in the hands of a potentate who owns hardly a single ship. The loss of those notes must in all probability prevent the completion of Brown's *Prodromus*, to which allusion has been made; and thus a work, which now might have been in progress towards completion, has yet to be begun, notwithstanding the zeal that has been displayed by subsequent observers. That which has been lost was the foundation, and without that, there can be no structure. Its true, there is a little remnant, besides the drawings at the Admiralty: M. Francis Bauer, at Kew, has one portfolio of plants, and another of animals, painted in his brother's very best style, accompanied by the necessary characteristic dissections, and bearing the microscope

almost as well as the originals themselves ; and it is very much to be wished, that some public institution should possess themselves of these most exquisite representations, lest they also should find their way out of the country.

## CHAPTER VI.

## NATIVE INHABITANTS.

IN a philosophical point of view, the most interesting inquiry respecting any country, is the nature and habits of the human beings by whom it is found occupied ; and the interest of this inquiry increases in proportion as those people are different from the inquirers. Now, singular as Australia is in many of its characteristics, there are few in which it is more singular than in its native population. All over the coasts, and in the interior, so far as that has been explored, we find a race of human beings differing very little in the form of their bodies, their modes of living and of making war, their implements and their habitations ; and yet, though in these respects they might be all taken for brothers, their language is so diversified, that, within a comparatively short distance, the one is just as unintelligible to the

other, as both are to a European who visits them for the first time.

When, therefore, an attempt is made to trace their origin, and establish their analogy to the inhabitants of any other part of the world, a difficulty arises at the outset, which confounds the investigation, and defies the drawing of any thing like a satisfactory conclusion. Sameness of origin is naturally enough inferred from sameness of language ; and as in every department of animal history, except that of man, similarity of structure and habits are all the evidence upon which identity of genus or species can be established, it is not easy to resist drawing the same conclusion from the same premises with regard to the human race.

Now when we apply this double evidence to the native Australians, we find the one branch of it directly opposed to the other. In language, they are many races ; in form, appearance, and habits, they are only one ; and, throughout the wide extent of the country, resemble each other much more nearly than the inhabitants of two countries, who speak the same language, and have daily intercourse with each other. Is the language, or the likeness, the better proof ? Who shall answer the question ? That language does change, when part of a nation is removed to a new locality, is certain. The English of the United States is not the same as that of England ; though at the time when those states were first colonised, there was no difference between them.

Each language has since received new words and new idioms, and additions are making to these every day. But in the case of the people of England, and their relatives in America, we can see sufficient reason for this increasing difference of language,—a difference which, ere now, would have been much greater if the American population had not been in the habit of importing and reading English books, as soon after their appearance as possible. The principal sources whence the differences in dialects of the language spring are these: first, the different objects in the two countries; secondly, intercourse with different nations; and, thirdly, differences of occupations and habit. Each of these causes will operate powerfully in proportion to the activity of the people, and the multiplicity of their pursuits; and in England and the United States, these may be considered as greater, perhaps, than in any other countries, and certainly greater than in any two places of Australia.

Almost the only differences between one part of those extensive regions and another, are those of climate, and the vegetables that depend upon climate, and those of the fisherman and hunter.

With the differences of climate, the native Australians have but little concern, as they are tempered to it, and equally unclothed in the cold regions of the south and the warm ones of the north; nor have they so much interest in vegetables as that these should occasion any diversity in their speech. The

difference in the animals, at least those with which the natives are concerned, are also very few.

The same kangaroo is hunted in the tropical regions and on the mountains of Van Diemen's Land, and the weapon with which it is destroyed is the same spear, or *boomerang*. Thus we have a difference of language in similar people, without any apparent cause from which it can have arisen; and this consideration is decisive of the question as to whether the people have had a common origin, either in Australia, or from any other part of the world:—it decides that the question is insoluble, and that any speculation regarding it, however ingenious, is, without much more evidence than is now in existence, a mere waste of time.

Thus, setting aside all the speculations as to whence the Australians came from, the object of this chapter will be narrowed to an attempt at showing what they are. Even that is no easy matter, more especially as relates to the most valuable part of the estimate, the character of the people, and their susceptibility of advancing in civilization. This difficulty arises in a great measure from the inhabitants having been seen at different points of the coasts, at distant periods of time, by navigators of nations having different habits, and having themselves different views in their intercourse with the people. For it is easy to be seen, that a navigator inheriting all the prejudices of the early part of the seventeenth century, would not give the same representation of

the same people as a navigator of the nineteenth. Besides, the early navigators went in quest of wealth only, while in latter times they have gone in quest of information, and with a disposition to make presents, rather than to plunder—to give a hatchet, rather than to snatch away a spear—to cloth or feed a native, rather than carry him off by force, and sell him into slavery. But, again, those differences in the dispositions and conduct of the observers, would tend to produce a future difference in the observed. The man who had been plundered, or had seen his brother or countryman carried off captive, by strangers whom he had never offended, would teach his children vengeance for the wrong, and hatred for whatever strangers might arrive.

Therefore, that the inhabitants, more especially of the northward coasts of Australia, who have had the greatest chance of being visited by the Dutch and Portuguese, or by the Malays, should arm themselves with their spears and show fight, the moment that a stranger approaches the land, is no decisive argument for inherent ferocity in them,—though it be pretty strong presumptive evidence of treatment with which they have previously met.

In examining carefully the reports of those observers, on whom, from their corroboration of each other without any possibility of collusion, the greatest confidence may be placed, the general conclusion is, that the inhabitants of Australia are naturally of an unoffending and pacific disposition. In every place where there has been reason to conclude that the

visit of Europeans was a first one, and the conduct of the visitor was kind, or even equitable, there is no evidence of primary aggression on the part of the natives; and where they have become hostile, without any act to merit it on the part of the commander, it is not easy to say what offence may have been given by some of the crew, or even what may be the difference between what is considered an offence by the one nation and by the other. One who reflects upon the wide differences in the causes of offence in the people of the same country, arising from differences of rank and habit, and without any reference to the individual tempers of the parties, will perceive that the utmost caution is necessary, before men who have had the advantages of education and laws, can venture to decide upon the characters of those who have not.

A glance at the islands farther to the north will tend further to prove that the savage disposition of the New Hollanders, wherever it has been evinced without provocation on the part of their visitors, has been the result of former ill usage, either to the existing generation themselves, or handed down to them by their progenitors. Throughout the whole islands to the northward of New Holland, as far as the Philippines, there are still found in the mountains a negro race, who, in the form of their bodies, their complexion, and their hair, bear so considerable a resemblance to the Australians, as that they are regarded as forming one great family of the

human race. Those negroes have been, in almost every instance, dispossessed of the shores and the better parts of the islands, by the Malays, who are more intellectual and active, though certainly not a more gentle people. Wherever their invaders have shut them up in the fastnesses of the mountains, these negroes have become a ferocious and a malignant people ; and have done so obviously on account of the cruel manner in which they were driven from their former heritages. There are evidences of this in the history of all nations : the hordes of the north did not overrun the Roman territory until the arms of Rome had been, in the then spirit of conquest, somewhat wantonly borne against them ; and even so lately as a century ago, the highlanders of Scotland did not scruple to plunder the lowlanders—not as a matter of theft, but as a matter of right, or, at any rate, of vengeance, upon the plea that these lowlanders had in former ages deprived them of their inheritance.

In like manner, the nearer the region of the Malays is approached, the more do the Australians seem disposed to attack, and, generally speaking, the better are they provided with weapons. From what is known of the natives of New Guinea, they seem to be of the same family with those of New Holland and Van Diemen's Land ; and they are so disposed to be hostile, that no foreign race, probably not even the Malays, have settled in their country.

The inhabitants of Murray's and the other islands

east of Bass's Straits, though represented to be of a lighter complexion, and a little more advanced in the arts than those of New Holland, are described as belonging to the same race; and though intercourse with strangers has given them some notions of commerce, it has given them much stronger ones of pugnacity. When Captain Bligh and Lieutenant Portlock steered through those islands in 1792, on their return from Otaheite, with bread-fruit trees, for the West Indies, they found the natives exceedingly hostile. Steering between Dungeness and Warrior Islands, not far from the coast of New Guinea, the natives so boldly attacked the brig commanded by Portlock, that he was obliged to make a signal for assistance, and the canoes were proceeding also to attack Captain Bligh's vessel. Instead of being intimidated by musketry, they cheered, and paddled more briskly forward; and retired only when a round shot had raked the foremost one, and demolished its stern. The men in it took to the water, and dived very dexterously to avoid the musket balls. The attack made by these islanders was truly formidable; they wounded three men in Captain Portlock's vessel, one of them mortally; and with such force were their arrows discharged, that they penetrated very deeply into the decks and planking of the vessel. When Bampton and Alt were in those seas in 1793, their reception by the natives was equally hostile, and more disastrous. In nearly the same latitude and longitude, an armed boat's crew were carried off and

murdered ; and the conduct of the people was treacherous in the extreme. But with all this treachery, they were much more advanced in the arts than the inhabitants of New Holland. Their canoes were from fifty to seventy feet in length, tolerably well made, and ingeniously carved and painted with curious figures on the elevated parts at both ends. Their arms were bows, of great length and elasticity, from which they discharged arrows with much force ; weighty clubs about four feet long ; and spears and lances made of very hard wood, of a black colour, sharply pointed, and some jagged and barbed for a foot in length. Their habitations were also constructed in a style much superior to those of the Australians. They were arranged in villages, each consisting of ten or twelve huts, and enclosed by bamboo fences nearly twelve feet high—the huts formed round a central pole, and covered with grass and leaves of the cocoa tree ; some huts had an area of thirty feet by fifteen, and the floors six feet above the ground ; the sides neatly constructed of bamboo. These huts bore evidence of the savage disposition of the people : two or three human sculls, and several strings of hands, five or six in a string, being very generally found in them. They appeared to cultivate yams, plantains, and sugar canes, the fields of which were separated by neat bamboo fences, and near the villages there were groves of cocoa-nut trees. Thus, from the accommodations of these people and their conduct, it does

not appear that the intercourse of strangers, how much soever it may tend to their advancement in the arts, has any beneficial effect upon the morals of the race of negroes, to which the natives of Australia are allied, if they do not belong.

Captain Flinders found the inhabitants of Murray's Islands of the same character with those that have been mentioned, though he escaped coming to any open rupture with the inhabitants.

Toward the bottom of the Gulf of Carpentaria, Captain Flinders found the natives much less formidable or disposed to be quarrelsome ; and they were without bows and arrows, like those of the islands near the straits. They had spears and throwing sticks, like the natives about Port Jackson ; though, from their having performed certain rites that are practised by the Jews and Mahomedans, it is not unlikely that they may have been visited by the Malays. Farther north in the gulf, and on the north shore,—it may be in consequence of more frequent Malay visitation,—the people are more inclined to be hostile ; and indeed their propensity to hostility seems to be very much in proportion to the frequency with which they have been visited. On those parts of the north-west coast, where there was the least reason to suppose that any stranger had previously been, Captain King found the natives most mild and honest in their dispositions. They were equally peaceable at King George's Sound ; and the first visitors of Van Diemen's Land met with no annoy-

ance, at least with no hostility, on the part of the natives. Nor does it appear that after the colony at Hobart's Town had been founded, any hostile disposition was shewn on the part of the natives, until injury had been done to them by the settlers. It is doubtful whether, in New South Wales the natives have ever been the original aggressors in those disturbances that have taken place. The character of the colonial population, and more especially of that part of it with which the natives come most in contact, renders the facts by no means a key to the disposition of the natives. The people, who, from the beginning, have been the most in the woods, and have, in consequence, come most in contact with the natives, have generally been those whose disregard of justice, in a land where there were laws to take cognizance of them, was the cause of their being there. Persons who had transgressed, where there was a law and power to enforce it, were not very likely to behave better where no law existed ; and, therefore, the reputed cruelties that have been attributed to the natives, both in New South Wales and Van Diemen's Land, are most likely to have been nothing but vengeance taken for wrong previously done, which, in their view of the matter, is all that is or can be meant by justice and equity. Thus, on candidly looking at the evidence, there appears to be nothing chargeable against the native inhabitants of Australia, which takes them out of the ordinary class of human beings, and forces upon them a character

of greater cruelty and revengefulness than would belong to Europeans, if they were equally destitute of knowledge, education, and the restraints of law and government.

The present time, when the black inhabitants have been so long and so frequently maltreated by runaway convicts, is not the proper period for judging of the natural disposition of these people. The natural associates which savage men are likely to select from among civilized, are the least cultivated, —those who are likest to themselves ; and as the colonial labourers have been, from the beginning, men who were there just because they had been vicious, it is natural that they should teach vice to the natives—the more so that, in the way of ordinary intercourse, the vices of their more civilized visitors are the first lessons that savages usually learn.

The first establishment of the colony is the proper time at which to find the natural character of the Australian blacks ; and it is fortunate that the facts are recorded by Colonel Collins, whose unpretending narrative is much more to be relied on than the later accounts, by more gaudy but less candid describers. Now, according to Collins, the natives of New South Wales were not the original aggressors in those skirmishes which took place between them and the settlers. It is true, that when the governor surveyed Port Jackson and its river, the first time that a foreign keel had divided its waters, the natives warned him and his party to

be off. But that is not to be wondered at. What would take place if men, in strange attire, should make a descent upon any of the coasts of England with a fleet as formidable, in comparison, as Governor Phillips' three boats must have appeared to the native Australians?

When the colony made a landing, the natives were not forward to annoy them; and it is extremely probable that they had met with abuse long before they at all appeared. Nine convicts strayed from Port Jackson towards Botany Bay almost immediately after the landing, and, from the character and habits of these people, it is reasonable to conclude that they would conduct themselves towards the natives with any thing but that caution and forbearance which are absolutely necessary to the establishment of an amicable understanding between people who are ignorant of each other's manners and language. Still, notwithstanding the frequent escapes and misconduct of the convicts, only two of the natives visited the camp; and the following is Colonel Collins's account of them:—

“ These men strolled into the camp one evening, and remained in it about half an hour. They appeared to admire whatever they saw, and, after receiving each a hatchet (of the use of which the eldest instantly and curiously showed his knowledge, by turning up his foot, and sharpening a piece of wood on the sole with the hatchet), took their leave, apparently well pleased with their reception. The

fishing-boats, also, frequently reported their having been visited by many of these people when hauling the seine, at which labour they often assisted with cheerfulness, and, in return, were generally rewarded with part of the fish taken.

“ Every precaution was used to guard against a breach of this friendly and desirable intercourse, by strictly prohibiting every person from depriving them of their spears, fiz-gigs, gum, or other articles, which it was soon perceived they were accustomed to leave under the rocks, or loose and scattered about the beaches.”

It were well for the world, if a little of this savage honesty could be imported to even the most civilized society ; and they who are accustomed to moralize on such matters, will regret that a people so perfectly unsuspecting, should have, at their very first intercourse with civilized men, and in spite of the injunctions of Governor Phillips, “ fallen among thieves.” Colonel Collins proceeds :—

“ There was great reason to believe, that these precautions were first rendered fruitless by the ill conduct of a boat’s crew belonging to one of the transports, who had attempted to land in one of the caves at the lower part of the harbour, but were prevented, and driven off with stones by the natives. A party of them, consisting of sixteen or eighteen persons, landed some time after on the island, where the people of the Sirius were preparing a garden, and, with much artifice, watching their opportunity,

carried off a shovel, a spade, and a pick-axe. On their being fired at, and hit on the legs by one of the people with small shot, the pick-axe was dropped, but they carried off the other tools.

“ To such circumstances as these,” continues this impartial observer, “ must be attributed the termination of that good understanding which had hitherto subsisted, and which Governor Phillips laboured to improve whenever he had an opportunity. But it might have been foreseen, that this would unavoidably happen: the convicts were every where straggling about, collecting animals and gum to sell to the people of the transports, who at the same time were procuring spears, shields, swords, fishing lines, and other articles, from the natives, to carry to Europe. The loss of these must have been attended with many inconveniences to the owners, as it was soon evident that they were the only means whereby they obtained, or could procure, their daily subsistence; and although some of these people had been punished for purchasing articles of the convicts, the practice was carried on secretly, and attended with all the bad effects that were to be expected from it.”

The inhabitants of Van Diemen’s Land, who are now considered as being more determined and persevering in their hostility to the settlers than those of any part of New Holland, showed at first a different disposition. They watched, but at the same time they avoided their early visitors. In

December 1798, Flinders having landed on the banks of the Derwent, and shot some black swans, he thus describes the reception he met with from a native :—

“ We landed, and went up to them, taking with us a black swan. Two women ran off, but a man, who had two or three spears in his hand, staid to receive us, and accepted the swan with rapture. He seemed entirely ignorant of muskets, nor did any thing excite his attention or desire, except the swan and the red kerchiefs about our necks ; he knew, however, that we came from the sloop, and where it was lying.”

The first, and probably the only occasion on which there was a primary attack on the part of the natives, where they had not been previously visited by some adventurer, was during the survey of Moreton Bay in 1799. Flinders, accompanied by Bongaree, a native, who subsequently sailed in different voyages of discovery, went on shore, and met with a party of fishermen, with whom they carried on some barter. In the course of this the natives seemed eager to be possessed of a hat of plaited leaves, worn by Flinders. Not being able to accomplish their wish by fair means, they tried to snatch the hat, one with a hooked stick in front, and another with a long arm in the rear. Finding these means fail also, and Flinders and his attendant having retired to their boat, the natives first threw their fire-sticks, and then a spear, which passed over the very centre of the boat, but

without doing any harm. The discharge of a musket or two wounded some of the natives, and terrified the rest: but on subsequent intercourse with them they were friendly; and probably the skirmish may have taken place in consequence of the violation of some of their notions of barter, not understood by their visitors: for it is to be borne in mind, that the fishing net, which the native offered in return for the hat, formed a much greater and more valuable portion of his wealth, than the hat did of that of Mr. Flinders; and the natural standard by which men estimate value is the amount of what they themselves possess.

At Rockingham Bay, in about latitude  $18^{\circ} 30'$ , on the east coast, visitors have not only found the natives very amicable, but more ingenious, and farther advanced in the arts than at almost any other part of the coast. Lieutenant Jeffreys, in 1815, was probably their first visitant; and they readily went on board his vessel, and conducted themselves in an orderly manner. When Captain King visited them four years afterwards, they were equally courteous. They came on board with little persuasion; contrary to the general practice, they ate biscuit; were very curious in examining every thing they saw; gladly exchanged their baskets and turtle pegs for lines and fishing hooks; and, upon retiring, they pointed to their huts and invited the navigators to return the visit. They were even pleased with some articles of old clothing, such as the feet of a pair of old

stockings put upon one, and the legs of the same upon the arms of another ; though as soon as they reached the shore they divested themselves of their finery,—the taking off of a shirt, which had been put upon one of them, being a labour of no small difficulty. Their huts were much better constructed than those of most of the natives ; their canoes, though small, were also neatly put together ; they had neat baskets, and were provided with shells of the bottle-gourd (*curcurbita lagenaria*) for carrying water. Instead, too, of devouring their food almost raw, or barely scorched over an open fire, as is the most general custom in the country, they had ovens for the preparation of their food. These ovens consist of a hole dug in the ground and lined with stones. Upon these a fire is kindled ; when heated, that is removed, the food placed on the warm stones, stones laid over it, and a fresh fire kindled, and allowed to burn till the cooking be accomplished. It is worthy of remark, that the place occupied by these comparatively intelligent natives, seems to be naturally one of the best in the country. Captain King's people picked up the shell of a green cocoa-nut, a fruit which has not hitherto been found growing in Australia, and, as Cape Sandwich, near which it was found, is within the barrier reef, where the current sets from the south, that nut is not likely to have been wafted from any of the islands to the north-east, but was in all probability the production of the neighbourhood. That the natives of Blue

Mud and Caledon Bays had been visited by the Malays previous to the time when Captain Flinders surveyed that shore, there can be little doubt—the more so that those at the latter place imitated the action of shooting, calling “poo” at the same time, before a shot had been fired by the English. Even then, Captain Flinders suspected that in the affray during which Mr. Whitewood was wounded with spears, some of his own people had been the aggressors. Captain King, it is true, met with unprovoked attacks at more than one place on the north coast; but the places at which he met with them were in the line, not only of the Malay fishery, but in that of those early navigators who were in the habit of kidnapping those “cruel black savages,” as they termed them, and making slaves of them themselves, or selling them to others for the same purpose.

When Mr. Oxley first explored Moreton Bay, in 1824, he found the natives not only without any hostile disposition, but disposed to be friendly; and there was evidence that instead of attacking white men in a defenceless state, they treated them as tenderly as if they had been of their own colour and tribe. Four persons had, in March that year, sailed from Sydney in an open boat, in order to bring cedar from Illawarra; but when near that place, they were caught in a severe gale, and driven out to sea. They drifted for six days, southwards as they thought; and so, when the weather moderated, they steered north-west, as near as they could judge with-

out a compass, in hopes of regaining the land at Illawarra. Their sufferings from fatigue, the inclemency of the weather, and the want of water, were so great, that one of them died in a state of delirium when they were in sight of land, and after they had been twenty-one days at the mercy of the elements. After making the shore, which they believed they did considerably to the south of Sydney, they were afraid to land on account of the natives; but their boat being at length dashed to pieces, they had no alternative but to swim on shore, almost destitute of clothing, and with a very scanty supply of provisions. They at last met with the natives, who wished them to stay at their huts, making signs that they would catch fish for their subsistence. This being refused, the hospitable savages accompanied them about a mile in the direction in which they wished to take, were quite pleased with their remaining in the huts all night, and paid them every attention. As these men would not stop at any of the huts, the natives, after accompanying them several stages, took their leave; but before doing so they gave them the best information they could respecting their intended route, and where they would find a canoe by which to cross a stream which lay in their way. Other natives supplied them with provisions; and, indeed, when these wanderers had possessed themselves of some of the natives' property, instead of being punished for it, they were fed, and their destitute condition appeared to excite a good

deal of sympathy. During the remainder of their stay they were treated with uniform kindness ; the natives insisted on painting them in their own fashion, and would gladly have perforated the septums of their noses for receiving the ornamental stick, as well as seamed their bodies with those fashionable scars, of which the native dandies of Australia are as vain as those of Europe are of their braid and lace. No sooner had the cutter, with Mr. Oxley and his party, anchored in the bay, than the natives announced the welcome tidings to their guests, and led them to the beach with shouts ; and, says Mr. Uniacke, in the account of the expedition, “ While approaching the beach, the natives showed many signs of joy, dancing and embracing the white men, who were nearly as wild as they. The men were perfectly naked, and covered all over with the white and red paint which the natives make use of.”

The following extract from the *Journal of Thomas Pamphlet*, one of these unfortunate men, as published in a volume of interesting tracts connected with Australia, edited by Mr. Barron Field, concentrates a number of their habits into a short compass, and has the air of truth :—

“ We were now certain that we had been thrown on an island, and our thoughts were therefore directed towards the means of reaching the main land. At the back of the sand hill, we found a small well of fresh water, which had been dug by the natives ; near this, we made a fire, and passed the

night. We observed fires on the opposite shore, and early the next morning we kindled a large one down on the beach, which being seen by the natives, one of them passed over in a large canoe. As he approached, however, we retired behind the hill ; and when he had hauled up his canoe, he made directly for the fire. We then made our appearance, but no sooner did he observe our colour, than he ran back to his boat, and jumping in, pushed rapidly off, shouting and roaring with all his might. In the meantime, another canoe was launched from the opposite side, with two men, who met the first about half across the channel, and they then both paddled towards the place where we were sitting. When they had landed, we were unwilling to approach them, lest they should again be frightened, and therefore remained sitting quietly by our fire. The three men then approached cautiously towards us, and having examined us at a distance, returned to their boats, and made signals with some pieces of bark to those on the opposite shore, when two more canoes pushed off, with five or six men in each ; and, as soon as these had landed, the whole party, to the number of fourteen, approached us. They were perfectly naked, and had neither spears, nor any other kind of weapon with them. They still appeared shy of coming near us, but at last one man came close to the fire, and on our making signs, two or three more followed his example, and in a short time the whole party had formed a circle round us.

Parsons happened to have a pair of scissors, which had belonged to Thompson, and their beards being very long, he commenced cutting them, which appeared to delight them greatly. They remained an hour with us; and on rising to go away, we got our bags on our backs, and prepared to accompany them. This, however, they did not seem inclined to permit, but ran down quickly to their boats. We then endeavoured to secure one of their canoes, but they were too quick for us, and jumping in, pushed them rapidly away. We now began to despair of being able to quit the island, and returned very unhappy to some deserted huts, which we had seen about three miles before we arrived at the point. Here we passed the night, and next morning returned to the point, in hopes of being still able to persuade the natives to take us across the channel. On approaching it, our joy was excessive at seeing the large canoe that had appeared first on the preceding day, lying on the beach without any person near it. On looking round, however, we saw two natives, who were apparently proceeding towards the place where our boat had been lost, for we now found we had walked nearly round the island. They did not appear to notice us, but kept on their way, upon which we proceeded with all speed to secure the canoe. On examination, we feared that it would not carry us all three with our bags, &c.; so, having consulted awhile, I agreed to remain behind, and let Parsons and Finnegan cross over, when it was stipulated that

one of them should return and fetch me. They accordingly pushed off, and I retreated to the top of the hill, from whence I was able to see them the whole way across. On the canoe's approaching the shore, I could perceive a great number of natives walking out in the water to meet them, which made me very apprehensive that they were about to destroy them ; and, when they had landed, the whole crowd got round them, and moved in towards the bush, which at last hid them from my sight. I remained looking out till evening, expecting to see the canoe every minute, but in vain. I therefore returned to the little well, where we had passed the first night, and having kindled a fire, spent a very wretched night, being greatly alarmed lest my companions should have met with some misfortune. In the morning, I returned to the beach and made a large fire, in hopes that on seeing it, the canoe would return for me. However, I was again disappointed, nor was I able to perceive a single native on the shore the whole day. I now began to lament my hard fate, in being left alone in this desolate place, where, after the little flour I had was expended, I must expect to perish either by hunger or the hostility of the natives ; and I returned to the well, fully convinced that I should never again see either of my unfortunate companions. The next morning, in walking along the shore, near the point, I saw a large cask, which had drifted ashore from some vessel. Conceiving it might contain some provisions

or spirits, I set to work to get some of the hoops off ; but when I had succeeded, I found, to my disappointment, that it contained only six other casks, one inside the other. They appeared quite fresh, and had not been long in the water : they seemed to be intended to hold oil. While thus employed, I gave many an anxious look to the opposite shore. I was proceeding up the hill again, when I saw the canoe put off with two persons in it, whom, on its nearer approach, I ascertained to be Finnegan, and one of the natives. On reaching the beach, the native took his nets on his shoulder, and marched off in the same direction as the two who had before left the canoe ; but before he went, he made signs for me to go back with Finnegan. Finnegan now told me that nothing could exceed the kindness with which they had been treated by the natives, who had lodged them in a large hut by themselves, and given them as much fish as they could eat, but that they could not before persuade the natives to let the canoe come over for me ; and it was only by accident he was now enabled to come with the native I had seen, who was going to visit his friends on the island. The tide was now running out of the channel with great rapidity, and I wished Finnegan either to pull along shore for some distance, or to wait till the tide slacked ; but he obstinately persisted in pulling straight across without delay. I was obliged to comply, and we pushed off ; but no sooner had we left the shore than, in spite of all our efforts, the current took us

out to sea. We still continued paddling for about an hour and a half, by which time we had drifted out close to the breakers, which were very heavy all round us; and, as we had no hope of the canoe's living if she once got among them, we redoubled our efforts, but to no purpose; we were soon in the midst of them; but, contrary to our expectations, the little canoe rode it out much better than a larger boat would have done. We soon got clear of them, and were now in the open sea beyond them. The tide still continued very strong, and we did not relax our efforts to gain the opposite shore, where we saw the natives, and Parsons in the midst of them, running along and watching our progress. At last, after about five hours hard paddling, the tide turned, and we reached the shore in safety, eight miles from the place where we had originally intended to land. We found Parsons, and a number of natives waiting on the beach, and were received by them with many demonstrations of joy. They lifted the canoe into the bush, and presented us with several roasted fish, and then conducted us to their huts. They placed us in a very large well-built hut, by ourselves, and supplied us with fish, water, &c., very liberally. Here we remained for a week or ten days, during which time we were most hospitably treated by the natives. They would not, however, suffer us to approach the huts in which their women were, for the first five or six days; and at night, five or six of the younger men would sleep in front of our hut.

But they afterwards became less vigilant, and we used to pass through their huts among the women as we pleased."

It has been considered that this collection of the facts will better enable the reader to form a proper estimate of the original disposition of the native Australians, than any dogmatical statement that could have been made without the evidence; and for the more certain determining of this point, it has been deemed expedient to separate the accounts of the conduct of those people in situations where they had had no chance of being contaminated by profligate Europeans, from the accounts that are given of them after having visited the settlements, or met with stray convicts or bush rangers in the forests. Having made these statements, it will be proper to follow them up by some slight notice of the appearance, and more remarkable practices and habits, of those people.

**PERSONAL APPEARANCE.**—The native Australians have certainly but slender claims to what we are accustomed to term personal beauty. The head is large, out of proportion to the size of the body, and the disproportion is farther increased by the quantity of frizzled hair with which it is covered, and the volume of which is often increased by an addition of grease and ochre. Their heads are flattened on the crown; their noses flat, and the nostrils widely distended; they have hollow eyes, to which a deeper enforcement is given by great

bushy and projecting eyebrows, which also add to the wildness of their expression. Their mouths are uncommonly large ; and, owing both to the prominence of the jaws and the thickness of the lips, there is an apparent elongation in that part, which, taken in conjunction with the flatness of the nose between the eyes, gives them a slight cast of the ourang-outang. Their bodies are, in those that are well fed and indolent, sometimes unshapely with fat ; but from the quality of their food, and the difficulty they have in procuring a sufficient supply of it, that is but seldom the case. Their limbs are in every part disproportionately thin, although, from the exertion they are often obliged to make, they are well knit and muscular, and capable of undergoing a great deal of fatigue. When born, they are not altogether black, but of a dark reddish brown ; and it is probable that, were they clothed, better fed, and not so much exposed to the action of the sun and atmosphere, or so bedaubed with grease, charcoal, and soot, they might be a dark brown, rather than a black people. In the form of their bodies, or the general expression of their countenances, there are hardly any differences throughout the whole extent of the country, farther than might be expected from a greater or a smaller supply of food, and different exertion or exposure. In the appearance of their hair there are more differences : those in Van Diemen's Land having it so much more frizzled than those about Sydney, as, upon superficial observation,

to make them seem a different race. In other respects, however, they are so analogous as to establish the fact of their being the same. In their weapons, their general habits, dispositions, and modes of life, there are no very remarkable differences. In the proportions of their bodies, the inhabitants of the coast and those of the interior have been described as a little different, even when inhabiting the same latitude,—those in the inland having the legs and arms longer. This may arise from the difference of their general modes of life. The coast inhabitants live much upon fish; while those of the interior support themselves by hunting the kangaroos, emus, or by climbing trees in quest of the animals that either live on these, or take to them for shelter. In these latter occupations, a more constant and severe exertion of the limbs becomes necessary, and this may account for their elongation. The appearance of the men is rendered more than naturally ferocious by the thickness of their black beards: they are very pleased to get rid of these; but as they have no means of shaving, except a burning stick, or a piece of shell ground to a sharp edge, the depilation of their chins is no easy or agreeable matter. They are farther deformed by the perforation of the cartilage between the nostrils, and by the piece of bone or reed which they stick into the opening as an ornament. The seaming of their bodies, by cutting with a shell, at successive times, until a welt the size of the little finger is produced, tends farther to deform them.

It is a singular fact in the history of rude nations in all parts of the world, that the carving or painting of the skin, and often a combination of the two, is regarded both as an ornament and honour. Civilized people have a difficulty in reconciling the hideousness and pain of the carvings with any feeling that they imagine to be consistent with a being even in the lowest stage of reasoning. But, as the endurance of pain and privation are the virtues which the savage is most frequently called upon to exercise, they are the ones upon which he sets the highest estimation ; and, therefore, many of those markings and mutilations upon the body, which we are disposed to regard as wanton deformities, may, to the wearers, be honourable badges of their endurance—the chief test of nobility among them.

The females have, when young, a more pleasing expression than the males, and they are more gracefully and delicately formed ; but the hardships they are made to undergo, the inferior nature of their food, and the treatment which they receive, destroy those superiorities as they advance in life. In general, however, when the females have been uncorrupted by visitors, they possess a degree of modesty that could hardly be looked for.

The smearing and blackening which the native Australians practise upon their skins, though it makes them disagreeable to look at, is by no means without its use. The mosquitoes, and other insects, which swarm around them, more especially around

those who, being fishers, live near the water, are so annoying, that unless this coating were put on as an armour against their bites and stings, these would be altogether unsupportable. Observers have noticed, that among the native Australians few deformed persons are seen ; but that is common among rude nations, and the reason is evident : with such treatment as they experience in their infant and earlier years, only those whose frames are robust can be brought up. For their proneness to the use of oil, more especially upon their heads, there may be another reason : it may help them to endure that burning sun to which Europeans cannot venture to expose themselves, uncovered, without the most imminent danger. But the oil is not the only ornament of the head : they divide their frizzled hair into parcels, mat them together with gum, till they hang like so many dark-coloured candles, and often finish the ornamenting by fastening, with the same substance, human teeth, teeth of kangaroos, bones of fish, the feathers of birds, the tails of dogs, or, when other ornaments are wanting, slips of wood. Every thing, in short, goes with them as an ornament for the head ; and accounts are given of some well meaning ladies of Port Jackson, who, having generously bestowed upon some of the blacks certain portions of male attire, made to be worn on quite another quarter, were equally astonished and shocked when their sable protégés soon after presented themselves to give thanks, just as nude rearward as before, but with tatters of the

*femoralia* tastefully gummed around their ears, as a substitute for wigs.

**HABITATIONS.**—It is natural to suppose that a people who not only do not desire the luxury of clothing, even at times and in situations where it freezes and snows, should not be very particular about their habitations. Throughout Australia any thing that deserves the name of a hut or dwelling is exceedingly rude. In the warmer latitudes, or the summer season, the shadow of a tree often suffices; and, in traversing the forests, a stranger often finds the trees charred towards the root, by the natives having chosen them for their temporary dwellings, and kindled their fires under them. Where no tree grows save the mangroves upon the swampy shore, where a resting place cannot be easily found, or a fire made to burn, the temporary dwelling is often a bush, stuck into the sand, as the rudest natural means of protecting themselves from the elements. Other habitations are formed of a large slip of bark, with both ends stuck into the ground; and these are seldom larger than to accommodate one individual. In some places the huts are a little better, and might even be regarded as the rudiments of fixed villages, though none of them appear to be permanent places of abode, or, in our sense of the word, the property of the individual,—unless it be in some of the settled tribes, where there is a hut of larger dimensions for the

chief, or oldest man of the tribe still able to undergo the necessary degree of fatigue. The caves with which some parts of the country abound, supply the natives with houses ready made, in which they find better protection from the weather than in their huts of leaves and bark ; but whether their dwelling be natural or artificial, they seem not to care for it beyond the accommodation of the moment ; the hut is seldom repaired, and it may be added that, generally speaking, it is never cleaned. The remains of their food render their resting places far from savory to a European ; and the same cause which prompts them to shield their bodies with filth during the day, induces them to kindle the fire partially within the hut, and envelope themselves in smoke during the night,—the desire of defence against the mosquitoes.

In the vicinity of Sydney, the dwellings of the natives were peculiarly rude ; and though the example of better habitations has been set them by the colonists, they do not appear to have improved. In some places the huts are larger, and formed of the long and tough twigs of the melaleuca, formed as bows, in the same way that the gipsies construct the ribs of their tents ; like these too, they are of very trifling elevation, and the fire is kindled at the door. Their huts are covered with the bark of the same tree that forms the ribs, and unless that they are not carried from place to place, which the want of beasts of burden prevents, on the one hand, and the abundance

of twigs and bark renders unnecessary on the other, they bear a great resemblance to the gipsy habitations. The best description of huts are formed round a pole in the centre ; but these too are low. The huts which some navigators have described as being in the shape of beehives and of considerable height, are the work, not of men, but of ants. At some parts of the coast, one-walled dwellings, like those which used to be inhabited by the wild clans of Sutherlandshire, have been met with ; the wall being either a natural rock or a rude pile of stones, and the rest of the hut a few sticks leaned against that, and covered with bark, grass, or leaves. It is, however, worthy of remark, that in virtue of a general law of human nature, where their accommodation is the best, their manners are the mildest, and they may be visited with the greatest safety.

**CLOTHING AND UTENSILS.**—Of clothing, properly so called, the greater part of the native Australians may be considered as having none. Cloaks of kangaroo skin are worn on the shoulders in Van Diemen's Land, and in the country to the westward of the Blue Mountains ; but, from the mode in which they are worn, it is difficult to say whether use or ornament be the chief intention of them ; and when belts of plaited grass, or bark, or hair, or any other substance, are worn round the loins of the men, they may be considered rather as receptacles for holding some part of their weapons than answering

any other purpose. Their utensils are few: a bag knitted of grass or of leaves, or a basket plaited of twigs to carry their gum, their fern root, their hooks and lines; a gourd shell, in the places where that is found, to hold water; and pieces of stone or shell, gummed to a handle, for an axe, a knife, or a hammer, are all the household furniture that they possess.

**CANOES AND NAVIGATION.**—In these the natives of Australia are equally rude as in their other means of accommodation; and there are nearly the same differences in the different districts. Where the hut is best, the canoe is best; and where there is no hut, there is also no canoe. In Van Diemen's Land, where the summer habitation is in the brush, and the winter one in the cave, there are no means of crossing a river, except throwing a tree into the stream, or swimming, or fording. Upon the tropical coasts, where the soft and spongy mangrove grows to a large size, it offers a simple substitute for a boat, being sometimes used in a single piece, and bestrid in the water as a charger, and at other times formed into a little raft, on which the navigators can sit.

Captain King had an opportunity of seeing and describing this log-sailing at Endreby Island, to the north-east of North-west Cape. "As we advanced," says Captain King, "three natives were seen in the water, apparently wading; but as we approached, it was discovered that each native was

seated on a log of wood, which he propelled through the water by paddling with his hands.

“ On the boat’s coming up with the nearest Indian, he left his log, and, diving under the boat’s bottom, swam astern. This he did whenever the boat approached him, and it was four or five minutes before he was caught, which was at last effected by seizing him by the hair, in the act of diving.” The captain then describes that rudest of all means of navigating. “ It appears that the only vehicle by which these savages transport their families and chattels across the water is a log of wood ; that which we had brought alongside with our captive friend was made of the stem of a mangrove tree ; but as it was not long enough for the purpose, two or three short logs were neatly and even curiously joined together end to end, and so formed one piece, that was sufficient to carry and buoyant enough to support the weight of two people. The end is rudely ornamented, and is attached to the extremity by the same contrivance as the joints of the main stem, only the two are not brought close together. The joint is continued by driving three pegs into the end of the log, and, by bending them, they are made to enter opposite holes in the part that is to be joined on ; and as the pegs cross and bend against each other, they form a sort of elastic connexion, which strongly retains the two together. When it is used, they sit astride, and move it along by paddling with their

hands, keeping their feet upon the end of the log, by which they probably guide their course."

Another mode of log-sailing has been described, in which the hands of the sailor are left at liberty to use the fizgig or turtle-peg in fishing. "The native sits so far backward upon the log, as that the fire which he places on a little sand on the fore-end is kept dry; he sits astride, grasping the log between his knees and paddling with his feet, or occasionally with one of his hands, while the other holds the weapon for fishing."

The next stage of navigation, the raft, was found by Captain King, further to the eastward on the north-west coast, at Hanover Bay, about longitude  $25^{\circ}$ . They were composed of five pieces of mangrove, thick at one end and slender at another, lashed to four more tough and slender sticks, one across each end, and one down each side. These were of sufficient buoyancy to carry two natives, together with their spears and baskets. These rafts, or catamarans, are paddled along by means of a stick, and appear to answer the double purpose of transport and fishing.

On the east coast, the canoes are made of bark; the pieces, where more than one are used, being sewed together, and rendered water tight, both at the seams and where they are tied at the ends, by the application of gum. At Rockingham Bay, already mentioned, the canoes are very small, not exceeding

four feet in length, and they are paddled by two pieces of bark, the rower sitting in the centre of the canoe. Farther to the northward on that coast, the canoes are of much larger dimensions. They are capable of carrying several persons, but they are narrow in proportion to their length, and prevented from upsetting by outriggers.

**FISHING.**—As fish form the principal food of the coast natives, with the exception perhaps of those of Van Diemen's Land, where the interior abounds more in game, the means of catching fish occupy a good deal of time and ingenuity. Shell-fish are either gathered upon the beach when the tide is ebb, or they are dived for by the females, upon whom, as in all rude states of society, the meanest part of the labour devolves, though in some places the fishing is wholly or chiefly carried on by the men, and the women occupied in digging fern-root. The fishing implements are hooks and lines, nets, fizgigs, turtle-pegs, and sometimes weirs, in which the fish are kept as the tide ebbs. The hooks are of pearl-oyster-shell, ground upon a stone to the required shape, and the lines are fibres of bark, the best being *Currijong*—the bark of the *hibiscus heterophyllus*. The nets are constructed of the same materials; and in some places, the meshes are knotted exactly in the same manner, and with the same neatness, as those used by European fishermen. The fizgig is a sort of spear, often fifteen feet long, made of melaleuca, the most useful tree to the coast natives. In some places it has four

barbs, in others fewer; these barbs being separate pieces of hard wood, lashed on with bark, and smoothed over with gum. With this instrument, which would be a most inefficient one in the hands of Europeans, these people strike and secure the fish, at a considerable depth, with great certainty. The turtle-peg is an ingenious contrivance, both in its form and the mode of using it. The peg is a piece of hard wood, about a foot long, sharp pointed, and with a barb firmly and neatly lashed to it, about three inches from the point; near the other end there is a knob, and beyond that a tenon, which fits into a hole in the end of a long and straight handle. A strong rope is passed round the peg by an eye, between the barb and the knob, and the other end is, in some places, made fast to the handle, and in others to a separate stick. The turtle is struck with the peg in the same manner as fish are struck with the fizgig; but as it is far too weighty for being drawn up by the staff, it swims away with the peg retained in its body by the barb, while the float which it has to drag after it, keeps it near the surface, retards its motion, and soon exhausts its strength. It appears also, that the advantage of "fishing in troubled waters," is known in Australia as well as in Europe. In the neighbourhood of Moreton Bay, where the men do not appear to be so exclusively devoted to the use of the spear as on the coast farther south, they wait on the shore, till the fish appear close by the strand; then a boy creeps forward,

throws in a handful of dust, and the men close in with their nets, one in each hand, and are successful.

**HUNTING.**—The natives of the interior, who are obliged to support themselves chiefly by hunting, have, of course, different methods of obtaining their living from those upon the coast. It is true that in the large rivers there are fish, and in some of them, shell-fish are abundant. Where these can be obtained, they are not neglected; but, as they are not to be had at all places, or in season at all times, land animals are sought after. In their choice, the natives are not very delicate, and have no objection to make out their meal upon reptiles and insects, the mere names of which, as food, would be revolting to an European.

It is probable that, in some places, the Australian dog is trained to hunt the kangaroo, for the natives have him in a state of domestication, and prize him so highly, that females have sometimes been known to give to a favourite puppy that food with which nature provides them for the nourishment of their own offspring. Generally, however, they attack the larger animals with their missile weapons, and climb the trees in quest of the smaller ones. When in the open plains, the large kangaroo defies them; but, if near trees, they steal from one to another, cunningly avoiding the notice of their prey, until they be sufficiently near for transfixing it with a spear,

after which they rush in and finish it with the waddie or club, the first blow being given across the loins, to prevent danger from the hind parts, which are formidable even in the death-struggle of the animal. In climbing trees for the smaller animals that take refuge in them, they are very adroit, cutting notch after notch with their stone-hatchet, as they ascend, deep enough for giving a hold to the great toe, which is of much use to them in climbing. They probe the hollow with a stick, and cutting a lateral hole, if they cannot reach the animal from the top, drag him out by the tail, and finish him by a blow against the tree. Sometimes, too, they catch animals in snares, but these are of rude construction.

**WEAPONS.**—Their weapons are numerous, and they are so dextrous in the use of them, as to be very formidable. The spear is the principal one, and the use of it is common in all parts of the country. The material of which it is most commonly made is the melaleuca, a twig about the thickness of the little finger, carefully straightened, scraped sharp at the point, and baked and hardened by fire until it acquire nearly the consistency of metal. Some of the spears, however, have only the point of hard wood, fastened with gum to a lighter handle, which breaks off when the spear takes effect. In some instances these spears are notched at the point, in others they are barbed with slips of hard wood, or bits of bone

or shell, fastened on with gum ; and when this is the case, the wounds which they inflict are difficult to heal, and the points by no means easy to extract. The spear-heads at Hanover Bay, where Captain King found the men sailing on the rafts, were very formidable. Some of the natives there having made a wanton attack upon the captain's party, and severely wounded Mr. Montgomery, the surgeon, he found himself warranted in making reprisals ; and having driven off the natives, he, according to the usual practice of war with a treacherous enemy, bore off their rafts, baskets, and arms, as the *spolia opima*. “ What chiefly attracted our attention,” says Captain King, “ was a small bundle of bark, tied up with more than usual care ; and upon opening it we found it contained several spear-heads, most ingeniously and curiously made of stone ; they were about six inches in length, and were terminated by a very sharp point ; both sides were serrated in a most surprising way ; the serratures were evidently made by a sharp stroke with some instrument, but it was effected without leaving the least mark of the blow ; the stone was covered with red pigment, and appeared to be a flinty slate. These spear-heads were ready for fixing, and the careful manner in which they were preserved, plainly shewed their value ; for each was separated by slips of bark, and the sharp edges protected by a covering of fur.” Captain King adds, “ Their hatchets were also made of the same stone,

the edges of which were so sharp, that a few blows served to chop off the branch of a tree." These formidable heads were fastened to the handles, in the finished spears which were taken, by a ligature of bark, and a mass of very hard gum. But though the spear be thus formidable, it does not appear that the natives of any part of Australia, add to its deadly power by poisoning, as is the case in some other countries. Indeed it does not appear that there is in Australia any substance adapted for that purpose. Sometimes, but not often, the spear is used for thrusting at close quarters, in which case it is thicker; but generally it is thrown, and there are few places where this is not done by means of a *womerah*, or *throwing-stick*, which gives it additional impetus in the same way that a sling gives it to a stone. The throwing-stick is about three feet long; and thus, with the same effort, it gives the spear more than twice the velocity that it would have if thrown only by the hand, at the full swing of the arm, and so sends it more than double the distance, and also makes it take effect with more than double the force. That end of the stick which propels the spear has a little hook, turned forward, which fits into a hole in the end of the spear; and the other end is grasped by three fingers of the hand, the middle finger being passed lightly over the spear, to keep it in its place, and assist in giving it the intended direction. As, from the way in which it is

used, the stick imparts the velocity gradually to the spear, that weapon is darted off with the full maximum of the force. The spear can be thrown about two hundred feet with a certainty not only of taking effect, but of being very destructive, and it is so slender, that the party against whom it is directed, if not accustomed to it, has great difficulty in avoiding it. When thrown by a powerful arm—and the natives practise it so habitually from their infancy, that they are all powerful as well as skilful marksmen—it will pass right through the body of a man, at a very considerable distance. It is very soon put in order too ; and as, like all other human beings in a state of nature, the Australians are cunning and treacherous where they dread hostility, they often come forward, as if unarmed, till they are within that distance at which they can do execution ; and then, taking their spears from between their toes—the manner in which they conceal them—they discharge them before defence or escape be possible. Even when they are concealing themselves in the brush, at which they are very dexterous, they generally do it in such a manner as that they can easily put themselves in a position to throw a spear, should necessity urge or passion incline them to do such an act.

Throughout Australia, the throwing-stick and spear are the substitutes for the bow and arrow of other nations ; and though it probably takes more

time to put the spear into the stick than to set the arrow upon the string, the weapon is much less inferior than one who has not seen it used would be apt to suppose.

These people have indeed another missile weapon, and one which is equally curious in the structure and the use: that weapon is the *boomerang*, which is a piece of very hard and heavy timber, rendered more so by exposure to the fire. Its length is about twenty inches, and its greatest breadth about three. Its form is something like that of a lunette, or rather of two arms slightly curved, forming a large angle at the centre. It is formed of a single piece, however; both sides are made sharp; and they stand a better edge, in consequence of their direction being obliquely across the grain of the timber. The boomerang is thrown in a direction slanting upwards, and both its form and the peculiar jerk with which it is thrown, give it a whirling and whizzing motion as it passes through the air; and when thrown high, it *cants over*, and hits with the force of its fall in returning. To throw this missile with certainty, requires a great deal of practice; but those against whom it is directed, are just as apt to run into its way as out of it, as none but the thrower knows where it is likely to fall. It is used in the chase, as well as for hostile purposes.

The manual weapons of these people are *waddies*, or clubs, which they wield with great strength,

and, when their passions are up, use without mercy.

The defensive weapons used against these formidable ones, are shields, which are of two kinds—strong and impenetrable ones of solid timber, worked to the proper shape, and fitted with a handle, and more light and slender ones of bark. There are others, that appear to be their chief, if not their only musical instruments, and which are beaten upon with sticks during their dances, and some of their more grave ceremonies.

The throwing of the spear seems to be, like the throwing of the *lasso*, among the peasantry of the Pampas, almost the whole study and business of life. The boys practise it from the moment that they are able to throw a reed, and they continue it through life, as a trade and amusement, and as a means of honourable distinction.

**GOVERNMENT WARS.**—The natives of Australia cannot be said to have any thing approaching to what the civilized world are accustomed to call government. The tribe, or rather family, that inhabits one particular district, do indeed acknowledge some sort of authority in the oldest man; but they give him the same name, at least in the neighbourhood of Port Jackson, that they bestow on a father; and substantially he has the power of administering no law, the distribution of no revenue, and the direction of no force, by which to put his commands

in execution. Northward of Port Stephens, where there are more traces of a rude kind of civilization than in any other part of the country, there is said to be more deference paid to the chief; but in no place can he be said to command the tribe. Every man is his own master, goes where he pleases, does what he likes, avenges his own quarrel, and when he is no longer able to maintain himself, dies in his own company.

Still there are some rudiments of society, traces of the attachment of child and parent, and of friend and friend, though it is doubtful whether these be either strong or permanent. From some circumstances that have occurred, it should seem, however, that these apparent defects arise more from the want of circumstances to call forth the kindly feelings, than from any radical want of those feelings themselves. Before man can greatly respect his fellow men, or sacrifice even his most momentary impulses for their sakes, he must, from a reciprocity of kind actions on their part, feel that they are essential to his happiness. It has been already mentioned that the colonists found the natives about Port Jackson an honest people; and though in their revenges they are implacable, cruel, and treacherous, stealing upon and murdering those who have injured or offended them, in the night, they are strict observers of the point of honour, even when they bring their disputes to issue by single combat. These seem to be in-

tended more for the purpose of strengthening the savage virtue of endurance, than for the gratification of revenge; for whether they take place between two individuals upon what may be supposed a private quarrel, or between one nation and another, they are confined to regular combats upon a chosen arena, and the great body are only spectators, unless some violation of the rules of combat produce a general encounter. That many of the tribes seem, as tribes, hostile to each other, is true; but there are no instances of what could properly be called a national war, to any thing like the extent to which such conflicts have taken place among the tribes in North America. Still the casualties that occur at those combats, and yet more, the murders which are prompted by private jealousy and revenge, help, in conjunction with the difficulties of finding food, and exposure to the inclemency of the weather, to keep the population in that scanty state, in which it is found over the greater part of the country. The grand cause of the thin population, and probably also of much of the animosity, is want of food.

It may not be amiss to mention one or two instances of the way in which these people settle affairs of honour. The following case was witnessed by Pamphlet, already mentioned, as having been the manner in which a Moreton Bay native—called the Doctor, because he bored noses and scarified skins—adjusted differences with one of another tribe, who, during a hunting party, had wounded him with a spear:—

“ The spot appointed for the combat was a small ring about twenty-four feet in diameter, about three feet deep, and surrounded by a palisade of sticks. The crowd assembled to see the fight, amounted to about five hundred, men, women, and children ; and the combatants, followed by those who were friendly to them, respectively approached the ring in single file, and drew up in a regular manner on opposite sides of the circle. The whole assembly were well armed, many of them having five or six spears each. The two combatants then entered the ring, and having laid down their spears in opposite rows, point to point, began walking backwards and forwards, talking loudly to each other, and using violent gestures, as if to inflame their passions to a due height. The women had been previously driven away, and the most profound silence reigned in the rest of the assembly. After about ten minutes spent in this way, they commenced picking up their spears with their feet, keeping their eyes fixed on each other, so as to prevent either taking advantage of the other’s stooping. In this manner they proceeded till they had each three spears, which they stuck into the ground ready for immediate use. At this moment, when they commenced thus picking up their spears, a tremendous shout burst from the spectators, who immediately relapsed into their former silence. All now being ready, one or two of the friends of each party spoke across the ring for a few minutes ; and, as soon as they had ceased, the Doctor threw his

spear with all his force at the other, who, however, succeeded in warding it off with a kind of wooden shield, called an *elemong*, into which, however, it penetrated three or four inches. The other then threw in his turn, but his spear was also warded off in the same manner. The third spear which the Doctor threw, penetrated quite through the shoulder of his adversary, who instantly fell, when one or two of his friends jumping into the ring, pulled out the spear, and returned it to its owner ; and the tournament concluded with loud huzzas from all parties. They all then retired to huts which had been erected for the occasion, and the next day they again met in the ring, in order to give the friends of the wounded man an opportunity to avenge his quarrel. But it appeared that no one wished to do so, as each had now wounded the other, and a reconciliation took place between the two tribes, which was announced by shouting, dancing, &c. and a party of boys were selected from each party and sent into the ring to wrestle ; after which, both tribes joined in a hunting expedition, which lasted a week."

This account of a more general rencontre, in which both sexes took part, is given by Colonel Collins :—

" Notwithstanding that they are the mere slaves of men, however, it has generally been found, in tracing the causes of their quarrels, that the women were at the head of them, though in some cases re-

mately. They mingled in all the contests of the men ; and one of these, that was in the beginning attended with some ceremony, was opened by a woman. As they had chosen a clear spot near the town for the scene of action, they were numerously attended from that place. The contending parties consisted mostly of those natives well known at Sydney, and some from the south shore of Botany Bay. The visitants repaired to the spot an hour before sun-set, and found them seated opposite each other, on a level piece of ground between two hills. As a prelude to the business, one of the Sydney natives, after having waited some time, stood up, and each man stooping down took water in the hollow of his hand, (the place before them being wet) which he drank. An elderly woman with a cloak on her shoulders (made of opossum skins, very neatly sewn together), and provided with a club, then advanced from the opposite side, and uttering much abusive language at the time, ran up to Cole-be, who was on the right, and gave him a severe blow on the head, which, with seeming contempt, he held out to her for the purpose. She went through the same ceremony with the rest, who made no resistance, until she came up to Yeranibe, a very fine boy, who stood on the left. He, not admiring the blows that his companions received, which were followed by blood, struggled with her ; and, had he not been very active, she would have stabbed him\* with his own spear, which

she wrested from him. The men now advanced, and gave the lookers on many opportunities of witnessing the strength and dexterity with which they threw their spears, and the quickness of sight which was requisite to guard against them. The contest lasted until dark, when throwing the spear could no longer be accounted fair, and they beat each other with clubs, until they left off by mutual consent. In this part of the contest many severe wounds were given, and much blood was drawn from the heads of each party; but nothing material happened while they had light enough to guard against the spear."

**SOCIAL HABITS.**—As, though they be without government, the Australians are formed into families, or nations, society must be considered as existing among them, though where they have not had intercourse with the settlers, it appears to be quite stationary; and where they have had that intercourse, it is very doubtful whether they may not be losing in old honesty and independence, what they are gaining in new knowledge and additional gratifications. It is with reluctance that they can be prevailed upon to wear clothing and live in houses; and though they work occasionally for the settlers, nay, though the children attend schools, show an aptitude for, and make much progress in, the rudiments of education, yet taking the natives as a whole people, perhaps the most accurate description that can be given of the change that has been effected on them by their intercourse with the colonists, is to say that they have been

made drunkards and beggars. The certainty of relief out of the poor rate has not elevated the character of the English peasant ; and the knowledge that, in the event of his death, his family will find shelter in the workhouse, instead of increasing his fondness for them, has rather sent him to the alehouse. The disparity between the condition of the colonists and the natives, has been too great for producing any beneficial change in the latter. That change must be slow, more especially between a people ignorant of the use of iron, and another people familiar with all the useful arts, and many, by far the majority of them, adepts in the dishonest ones. To hope that they would leap at once to the valuable class of those arts, would be even more extravagant than the fisherman, who, when his child had been a whole week at the Christ Cross Row, never doubted that it could solve all the mysteries of the almanack. The dishonest arts are not so tedious in the acquisition ; they need no text book, or system built up by the labour of ages. These are the result of example, and daily experience shows how soon they can be acquired. If man is to have a good social character, he must feel that he is independent,—that what he uses is acquired, and not bestowed ; and he must have some object to engage his affections. In the first of these respects, the Australian native who begs of the settlers, is a degraded man compared to what he was when his sole dependence was on his spear and his fiz-gig ; and in respect of affection, he

stands very much where he did. When Bongaree accompanied the discovery ships, in the capacity of interpreter, he was manly and independent ; and his conduct procured for him the title of “ the generous good natured Indian.” Bongaree, it is said, is now a beggar in the streets of Sydney, asking alms of every new comer. In the early history of the colony, when Bennillong visited London, lived in the European style, and was caressed, he did not teach his people the manners of Europe when he returned. He reverted to his former manners, and the savage disposition came out more forcibly than ever : he not only transfixes a soldier with a spear in the open street and without cause, but boldly avowed that he went armed for the purpose of treating the governor in the same manner. Bennillong was once friendly, and the protector of the whites ; and he had been treated with indulgence in the colony, and had seen good society in London.

The evil which lies at the root of all the social vice of the Australian natives—other than those which arise from their hardships and their ignorance—is their treatment of the women. The estimation in which that sex is held, may very justly be taken as the measure of civilization ; because there is not, in ancient or modern history, an instance in which it fails, and because it is the foundation of all family and social attachment. Accordingly, in every civilized society, nuptials are seasons of joy, because a new family and new reciprocities of tenderness, are

about to be added ; and wanton violation of the sex is a crime equally punishable with murder, and even more revolting.

Among the native Australians, this foundation of the kindly affections is wholly wanting, and their courtship and marriages are among the most ferocious traits of the savage character. The stay of visitors at most parts of the coast has been too short, and their intercourse with the natives too little, for enabling them to determine whether the same practice be general over the whole country ; but in the neighbourhood of Port Jackson, every marriage is attended with more violence than the rape of the Sabine women by the ancient Romans. On this subject it will be proper to quote the words of Colonel Collins, as he had the opportunity of obtaining his information as an eye witness, and before the presence of the colonists could have any influence, good or bad, upon the character or conduct of the natives.

“ These unfortunate victims of lust and cruelty,” says Collins, “ (it will admit of no better term) are, it is believed, always selected from the women of a different tribe from that of the males, (for they ought not to be dignified by the title of men,) and with whom they are at enmity. Secrecy is necessarily observed, and the poor wretch is stolen upon in the absence of her protectors. Being first stupified with blows, inflicted with clubs or wooden swords on the head, back, and shoulders, every one of which is followed by a stream of blood, she is then dragged

through the woods by one arm, with a perseverance and violence that it might be supposed would displace it from its socket. The lover, or rather the ravisher, is regardless of the stones or broken pieces of trees which may lie in his route, being anxious only to convey his prize in safety, to his own party, where a scene ensues too shocking to relate. This outrage is not resented by the relations of the female, who only retaliate by a similar outrage when they find an opportunity. This is so constantly the practice among them, that even the children make it a play-game or exercise."

Unions founded upon such violence cannot be supposed to have much of affection or fidelity in them, though it is said that the women very seldom quit their captors—most likely because they would not meet with better treatment any where else. Often the men have two wives, though one only has children; but whether those of the other are murdered is not known; at any rate, the murder of children in a helpless state is by no means unfrequent. It is not in the nature of things that when females are so treated, female honour should be very binding, and it has probably not been rendered more so by the settlement of the colony; but if children of a mixed blood make their appearance among the natives, the husbands of their mothers are very apt to destroy them.

Generally speaking, the females suffer less in the labour of parturition than those who are better

treated ; as, a few hours after delivery, they have been found picking up sticks to mend their fire. The infant is at first carried upon a piece of soft bark, and when it has acquired a little strength, it is placed on the neck of the mother, with a leg upon each shoulder, and grasping her hair to prevent it from falling. Ornaments are gummed to the hair of the child as soon as that makes its appearance ; and at the age of five or six weeks it gets a name, though no particular ceremony is mentioned as taking place upon the occasion. The education of the boys consists in learning to throw and to avoid the spear ; and as they are constantly in practice, they acquire great expertness by the time that the custom of their race allows them to throw it in reality ; for as spear throwing is the badge and the province of manhood, unmatriculated boys are not allowed to practice it in earnest. The play of the boys consists of mock stealing of the girls of their own tribe, as preparations to the real capture of those of another tribe afterwards ; for the stealing of females is also the sole privilege of the men, and cannot be performed by those who have not undergone the ceremony of matriculation. About the age of puberty, or sometimes a little earlier, the *septum*, or cartilage between the nostrils, is perforated for the purpose of admitting that ornament to which the sailors give the name of a “sprit-sail yard.” It is of bone or reed, or sometimes grass or flowers, but they do not wear it always, though it is accounted highly ornamental.

From what has been said, it need hardly be mentioned that the women are through life the slaves or servants of the men. All the drudgery devolves upon them ; and they and their children do not share in the fish or game till the men have satisfied themselves.

**MATRICULATION.**—The ceremony, of which that seems to be the most appropriate English name, is a very singular one ; and though to a European it seems not a little ridiculous, there is probably more meaning in it than some matriculations in more civilized countries. As the loss of a front tooth, which is the permanent mark of this formal transition from the boy to the man, is not found all over the island, there is no knowing whether the ceremony in the other parts of it be general ; but the following account of it, taken partly from Collins and partly from another authority, is correct as applies to the Port Jackson natives.

It should be remarked that small as the tribes in New Holland generally are, they are named after their countries in the same manner as in Europe ; the termination “ gal ” added to the name of the country, being the common name of the people. Cammeray being the native name of the land to the north of Port Jackson, and Gwea that of the south toward Botany Bay, the inhabitants are called Cammeray-gal, and Gwea-gal. It was at first supposed that the south was a tribute paid to the former of these by the latter ; but as both tribes want it,

that cannot be the case. In the instances of matriculation mentioned at Port Jackson, the operators came from Cammerry ; but the reason why it should be done by strangers, will afterwards appear without any reference to tribute, or the superiority of one tribe to another.

A short time before the arrival of the operators, the boys assemble, which it appears they must do voluntarily — otherwise they are stigmatized as cowards, and with them a number of their friends, as spectators, all painted in their best style. Thus assembled, they dance and amuse themselves during the nights.

The party of a different tribe, among whom are the operators, who are styled Carradhys, and act the part of a sort of priests upon this as well as upon other occasions, come fully ornamented and armed. The first part of the ceremony consists in preparing the proper arena for the future operations, which is an oval of about twenty-seven feet by eighteen, cleared from grass and roots, and called the yool-ahng. This is made ready some days before the ceremony, so that it may be dry and dusty.

At one end of this space the candidates and their friends place themselves, and the party, among whom are the operators, stand armed at the other. The boys are not given up, but snatched away one by one, and placed, with shouting, in the centre of the armed party, as if they were captives. When all taken, the boys are made to sit cross-legged

with their heads down and their hands clenched, and they neither look up nor eat during the ceremony. The only other performance of the first day is the pretended delivery of two principal Carradphys, each of a bone, which is used for scarifying the gums. In this they throw themselves upon the ground, and make strange contortions, as if they were in great agony ; but the bones of which they pretend to be delivered, are dexterously taken from a concealment in their girdles. Preparations being thus made, the ceremony begins on the following morning.

1. The boys sitting in the attitude previously described, the other party first enter the yoolahng, (or cleared space) and run shouting thrice round it. Then the operators, sticking their waddies into their girdles, to imitate the tails of dogs, run round the arena on all fours, driving the dust and sand upon the boys as they pass ; and the boys remain immovable, and maintain their gravity during the whole of the ludicrous exhibition.

2. The boys still remaining in their position, one of the Carradphys enters the arena puffing under the load of an image of a kangaroo, rudely made of grass ; another follows carrying a bundle of sticks ; and the rest of the party shout and beat time upon their shields with their waddies.

3. The boys still retaining their position, are left to themselves for a short time, and the Carradphys, having in the meantime stuck long tails of grass in

their girdles, enter the arena, hopping in the attitude of kangaroos.

4. As these kangaroos, who, like the dogs, perform their march in rank entire, pass the boys, each of them catches up one, bears him upon his shoulders in triumph, and marches off to a little distance, where the boys are set down, and some of the Carradhys retire to make some mysterious preparations, which strangers are not permitted to witness.

5. The boys are led or rather driven to a scene which is thus arranged: a heap of bodies is laid on the ground; they are close together, on their faces, with the heads all one way, and they lie motionless, as if they were dead. At each end there is a man seated on the stump of a tree, with another man sitting astride his neck, all the four having their faces turned in the same direction as the feet of the bodies upon the ground. The boys are brought toward that end, and as they approach, the two men on the nearest stump, wave their arms, writhe their bodies, stare, and loll out their tongues in the most hideous way that they can. These two then retire through an opening made for them by the men that have charge of the boys, and the boys are made to pass over the bodies that are upon the ground. These writhe and groan as if in great agony, making at the same time a dismally mournful noise; and when the boys have passed over the bodies, they are received with fresh groans by the two men on the other

stump, and then the whole party move on a little. During the fourth and fifth, and indeed all the remaining ceremonies, the operators are armed with spears, whereas they have only the waddie when they play the dog, and not even that when they play the kangaroo.

6. At some little distance from the scene of the fifth ceremony the whole halt ; the boys are seated in a semicircle ; the others form a semicircle opposite them, with the exception of the leader, who occupies the centre, and faces the other men, who are armed with spears and shields. The leader has a shield and waddie, with which he beats time, while the others poise and wield the spears, and at every third motion strike them against the middle of the shield. These are the preliminary tests, which if the boy stands, without any signs of alarm or uneasiness, he is admitted to the finishing rite.

7. The extraction of the tooth. For this purpose the boys are one by one taken astride the neck of a man ; then the mysterious bone is produced, and the gum scarified. After this a throwing-stick is cut to the length of nine or ten inches, and in dividing it, three attempts are made before every blow. The boy's head is held steady by an assistant ; the end of the stick is placed against the tooth ; and the operator, who has a stone in his other hand, after three feints, strikes the tooth out of its socket, or if it require more than one blow, three attempts are made before each. While this operation is perform-

ing, the assistants roar in the ears of the boys the most loud and hideous sounds that they can utter. The boy, when the tooth has been removed, is delivered to his friends, who close the gum, and deck him for the remaining part of the ceremony ; but the blood that may flow during the operation, either upon the head of the man, or the breast of the boy, is not wiped off.

8. When the operation is performed, the boys are ornamented by their friends, by tying a girdle round the waist, placing a wooden sword in it, passing a bandage round the head, and sticking it with slips of xanthorrhœa, arranged something in the form of a mural crown. They are then all set down on the trunk of a tree, with the left hand placed on the lacerated gum, and a waddie in the right. In this manner they sit, till, at a signal, they start up as men, and drive every thing before them.

It will at once be perceived that those curious ceremonies are typical of the whole employment of these men. The dog and the kangaroo, are given to them as their property ; the one to assist in hunting, and the other to be hunted. The produce of the chace is brought in, together with the wood to dress it. The taking of them up to carry them to the grimacing figures, and the prostrate heap, is emblematical of their not fearing the threats of their enemies, and their ability to find them out in their hiding places. The poising of the spear, and the touch of the shield, are to inform them that their

aim, and their warding off of a blow or a missile were to be equally sure ; and the crown is an emblem of their having triumphantly passed the ordeal. The noise, the threats, the attitudes which they are obliged to preserve, and the performance of the ceremony by strangers, are all so many traits, whereby to make sure that they have that fortitude and self-possession which are so essential in men exposed to so many dangers and hardships, both by their own dispositions, and by the circumstances in which they are placed. The two grand privileges which the passing of this ordeal confers, are the throwing of the spear in the chase, in war, or in combat ; and the capture of wives, in the manner before mentioned.

**DISEASES.**—The nature of their food, and their want of cleanliness, dispose these people to cutaneous diseases of a very inveterate character ; their wounds and bruises sometimes also fester from the want of proper treatment—a broiled fish or dried herbs being their common medicines, and the burying of a limb for some time in the earth their substitute for a poultice. That the oldest man of the tribe should be honoured, seems to be a protection against that neglect to which they are too frequently liable when they begin to decay. Of their average period of living, or their mode of estimating time, so as to ascertain their own ages, there are no very precise accounts. The Carradphys are physicians, as well as performers of ceremonies ; their practice consists in using strange gestures, as if they were enchanters ; and when the

patient dies, his relations are very apt to beat the doctor. The relatives also apply their mouths to those parts of the patient's body that they suppose are the most affected, or wave over him green boughs that have been dipped in water; and they occasionally sing over him in a mournful tone. When life is extinct, the women and children howl something in the manner of the Irish; and if the death has been occasioned by violence done by any one, or supposed to be so, the relations are never appeased until they have murdered one of the family to which the real or supposed murderer belongs. In this way children, for they take the first that they can meet, are often stolen upon and butchered, not only for injuries of which they are quite ignorant, but for those of which no human being is guilty.

**FUNERALS.**—Children, and persons under the middle period of life, are buried in the earth; and warriors, and such as are of advanced years, are burnt. There is a good deal of ceremony upon these occasions, weapons being placed beside the corpse, and the women and children howling over it. The chief mourner carries his throwing stick and spears, but the assistants are unarmed, and take up the children, holding them toward the corpse as it is carried along. Spears are thrown by the chief mourner, and mischief is sometimes done. If any of the relations have the same name as the deceased, they take another, as the living are not called by the names of the dead. When a parent leaves children considerably advanced,

so as to be useful, or nearly so, somebody adopts them; but children at the breast are cast alive into the graves of their mothers.

**INTELLECTUAL CHARACTER.**—Of that, there are but few data upon which to form a judgment. That they have the grand distinction between man and all other animals—the feeling of good or evil, in a prospective or retrospective sense, and without any reference to their immediate animal gratification—is certain; because they have the abstract words in their language, and because their actions are often regulated by that feeling. They have also some notions of a good and an evil being, which is the germ of natural religion, and may be considered as a sort of personification of the feelings. They appear also to have some glimmering notion of a future state; for they speak about their friends after death ascending to the tops of the trees, and feeding on little fishes. This has some relation to the paradise of Mahomet, these same fishes being the greatest luxury in their eyes. In treating of these matters, the greatest caution is, however, necessary; as those from whom the information has been obtained, have understood their language very imperfectly; and because the natives acquire English more readily, and they therefore mingle with their own belief accounts that they have heard from the colonists. Indeed, to learn the real character of the Australians, as a people, from those that frequent the neighbourhood of Sydney, is just as impossible as to learn the African

character from the negroes in the West Indies. Considering the materials that they have, their weapons display no small ingenuity, and that is farther shown by the masterly style in which they use them. Their songs are at times not unmelodious, though the musical instruments be only a shield and a stick : the dances are not destitute of grace, or, at all events, of agility. In the carving of some of their weapons they show some taste ; and there are some paintings of theirs upon rocks, in which the subjects meant to be represented can be determined. Much information, however, is wanted respecting them, as unmixed with whites, before any thing like a philosophical estimate of them can be taken ; and that information, unless at new settlements, where stray convicts shall not be their first white acquaintance, it is not now easy to obtain.

In this and the former chapters an attempt has been made to delineate what Australia really is in itself, without reference to what has been introduced or done by the colonists. It may be that that delineation will not prove so satisfactory as it has been laborious. . The materials have had to be gleaned from many sources, some of them contradictory of each other, and others unintelligible, because the parties have tried to make others understand what they themselves did not. There is enough, however, to warrant this general conclusion,—that the better parts of Australia hold out a fair prospect of reward to industry ; but to that only do they hold it out.

The remaining pages shall be devoted to a short account of what has been done in the way of discovery and colonization : the last of which is necessary, along with the facts already stated, to complete the picture of the country ; and as the other is scattered through many volumes, some of them unpublished, an outline, in a single chapter, may be useful.

## CHAPTER VII.

## PROGRESS OF DISCOVERY.

THE existence of New Holland and Van Diemen's Land was not known, with any thing like certainty, till long after the discovery of America, of the passage around the Cape of Good Hope, and of the islands in the Indian seas, as far as Timor, Ceram, and some parts of the coast of New Guinea. There are some disputes, or at least obscurities, as to the time of the original discovery, and the nation that made it. The French writers on Australian voyages, the President De Brosses and the Abbé Prévot, claim the merit for a countryman of their own, Captain Paulovier Gonnevile, who sailed from Honfleur in the month of June, 1503—was caught in a furious tempest off the Cape—lost his reckoning, and drifted in an unknown sea, from which he escaped by observing that the flight of the birds was

toward the south ; and, following them, Gonnevile lived six months on the land, to which he gave the name of Southern India ; and, during the time, he occupied himself in refitting his vessel, and at the same time carried on a friendly intercourse with the natives, whom he mentions as having made some advances in civilization. Now, all the more recent voyagers who have visited the north coasts of New Holland, and had a sight of the natives, (we can hardly call it intercourse.) represent them as being without the very first elements of civilization, and so treacherous and cruel in their dispositions, that no friendly terms can be kept with them. These considerations, and the additional one that, from the French captain's account, the people on whose island he lived were very like the inhabitants of Madagascar, render it almost certain that that was the island on which he spent the six months. His storm must have been a *south-easter*, from the period at which he left Honfleur ; and such a wind, though it would drive him, naturally enough, through the channel of Mozambique, if he had made longitude enough, could not possibly drive him to the north coast of New Holland.

It is probable that, in the early part of the sixteenth century, the Dutch or the Portuguese, in their way to or from the Spice Islands, may have discovered a part of the coast ; and in an old French chart, dedicated to the king of England, with an English copy, (date, 1542), in the British Museum,

a portion of coast, to the south of the Spice Islands, is laid down, and named Great Java ; but whether it be New Holland or New Guinea, is not known. The position of some of the coasts certainly gives it a resemblance to the north-east of New Holland, which could hardly be the result of accident.

In 1605, the *Duyfhen* Dutch yacht sailed from Bantam, in Java, for the purpose of exploring New Guinea ; and from the account given both of the country and the people, (who killed part of the crew,) it is evident that the mainland of New Holland, to the south-west of Cape York, was seen early in 1606. There is some probability that the north-east coast was also seen by Torres, second in command to the Spanish navigator Quiros, in the same year.

From their description of the people, it is certain that they were among the islands in the strait which has properly been named after Torres. The islands mentioned lie between  $5^{\circ}$  and  $11^{\circ}$  south, which correspond. “There is,” says Torres, “all over it (the bank in the strait,) an archipelago of islands without number, by which we passed, and at the 11th degree the bank became shoaler. Here were large islands, and these appeared more to the southward : they are inhabited by black people, very corpulent and naked ; their arms were lances, arrows, and clubs of stone, ill fashioned. We caught in all this land twenty persons of different nations.”

The manners of these people correspond with those

of the islanders in Torres' Strait ; and from the latitude, the islands to the south must have been the sand-hills behind Cape York. The kidnapping by such navigators as Torres, may in so far account for the hostility of these natives.

But the first certain discovery was of the west coast by the Dutch in 1616. The French expedition of discovery, sent out in 1801, found upon Dirk Hartog's Island, off Shark's Bay, in latitude about 25° S., a pewter plate, which settled the point. It bore two inscriptions, by different persons, and at different times. The first ran—" 1616, on the 25th of October, the ship *Endraght*, of Amsterdam, arrived here ; first merchant, Gilles Miebais Van Luck ; Captain Dirk Hartog, of Amsterdam. She sailed on the 27th of the same month. Bantum, supercargo ; Janstins, chief pilot ; Pieter Ecoores Van Bue . . . . . Year, 1616." The second inscription was to this effect :—" 1697, on the 4th of February, the ship *Geelvink*, of Amsterdam, arrived here ; Wilhelem de Vlaming, captain-commandant ; John Bremen, of Copenhagen, assistant ; Michael Bloem Van Estight, of Bremen, assistant ; the Dogger *Nyptangh*, Captain Gerril Colaart, of Amsterdam ; Theodore Hiermanns, of the same place, assistant ; first pilot, Gerrit Gerritzen, of Bremen ; the Galley, *Net Weseltje*, Cornelius de Vlaming, of Viclandt, commander ; Coert Gerritzen, of Bremen, pilot. Our fleet sails hence, leaving the southern territories, for Batavia."

The first inscription on the plate renders it certain that Hartog had touched on the coast early in the seventeenth century ; and the allusion to the southern territories, in the second inscription, would lead to the conclusion, that, before that time, the Dutch had seen and claimed the coast, though, in consequence of the violence with which the sea, during the north-west wind, beats upon the shore, and the unpromising nature of the soil, they had made no landing.

There is, indeed, evidence, that the land was often seen by the Dutch during the seventeenth century. In 1616, another yacht made a voyage, "with little success ;" but, in 1623, Jan Carstens, with the yachts Pera and Arnheim, discovered the coast of Arnheim's Land. Carstens says : "In this discovery were found, every where, shallow water and barren coasts ; islands altogether thinly peopled by divers cruel, poor, and brutal natives, and of very little use to the company"—the Dutch East India Company, by whom Carstens was sent from Amboina. Edel's Land, toward the south part of the west coast, from about latitude  $27^{\circ}$  to latitude  $32^{\circ}$ , was seen and named by Edel, a Dutchman, in 1619. Leeuwin's Land, extending to Cape Leeuwin, the extreme south point of the west coast, was discovered by the Dutch in 1622 ; and in 1627, Pieter de Nuytz laid down a number of the positions on the west and south, with great accuracy. Soon after, the north-west coast, from North-west Cape

toward Arnheim's Land, was discovered by De Witt, and named after him; and thus, though the sinuosities were not examined, a succession of points had been discovered, along the whole of the west and north-west coasts, and the greater part of the north.

In 1629, the coast was the scene of a disastrous shipwreck. Francis Pelsart had his vessel wrecked upon Houtman's Abrolhos, a dangerous reef on the west coast, in latitude about  $28^{\circ}$ , and some distance off the land. Taking to their boat, Pelsart and his crew coasted northward, to about the latitude of North-west Cape, where the boat was decked; and he, leaving a part of his crew upon New Holland, sailed for Batavia, but, upon his return, he found that the greater number of those he had left had been murdered by the natives.

In August 1642, Abel Jansen Tasman sailed from Batavia, with two vessels of discovery; and on the 24th of the following November he saw Van Diemen's Land, which was long after considered as a part of New Holland; though more recent discoveries have proved it to be about one hundred miles distant from that country.

Captain Flinders, who made the first modern survey of the great Gulf of Carpentaria, in 1813, found the positions of that bay so accurately laid down in the old Dutch charts, that he is of opinion that it must also have been surveyed by Tasman. No journal of Tasman's voyage has been found; but it is probable that his discoveries were more ex-

tensive than is generally supposed. In the notes of Witsen, the people at different parts of the coast are described as "bad and wicked," "shooting arrows," "throwing stones," having "prows made of the bark of trees," "making fires and smoke all along the coast," "living very poorly," and "feeding upon roots." This, with the exception of the arrows and spears, might be easily mistaken for the present inhabitants. The want of a journal of Tasman's voyage is a loss, as he seems to have been an accurate observer. Witsen's remarks, "there are few vegetables—the people use no houses," might have spared the attributing of the ant-hills to man, as well as the "babbling o' green fields."

Two years after Tasman's discovery, the island got the name of New Holland; and various visits were made to it, though little was known of its appearance, or of the manners of its inhabitants. The coasts which lay most in the line of the traders to Batavia, which were those most in the habit of coming within sight of New Holland, were both uninviting and dangerous. There was a want of fresh water; the land was sandy and barren; and the coast dangerous, as well from reefs of rocks as from the unsheltered shore, and the violent surf.

Though the Dutch were certainly the first that discovered New Holland, yet the first accurate or interesting account of the inhabitants, was given by the justly celebrated Captain Dampier. Dampier, who was one of the most careful observers, and one

of the most faithful delineators that ever went on a voyage of discovery, gave it as his opinion that New Holland was a large country, and not joined to any other of the quarters of the world. He visited the north-west coast, where he remained two months, in 1688. The picture which he draws of the coast in that part of the island is far from inviting. He describes the shore as low, flat, and sandy, without any streams or means of obtaining fresh water, except by digging. There were no fruits; no birds of larger size than a blackbird; not a trace of a quadruped, except one; and very few fish in the sea. The natives were “the most miserable creatures in the universe, almost stark naked, without houses or covering. They had no religion or government.” They did not improve upon a second view, for Captain Dampier thus describes an individual whom he had seen, upon his second visit to Australia in 1699, and who had ornamented himself in the fashion of the country, probably expressly for the occasion. “This, his painting,” says Dampier, “added much to his natural deformity, for they all of them are of the most unpleasant look and the worst features of any that I ever saw, and I have seen a great variety of savages.” It seems, however, that if these people do not get more comely in appearance, or more advanced in the arts, as those places where the country is more fertile is approached, they are much less ferocious in their dispositions; and if they be an

unseemly and an indolent, they are at the same time a harmless people.

A country and a people thus described—and, in as far as those northern and north-western coasts (the only places that had been seen) were concerned, the descriptions do not appear to have been very much exaggerated—had but few charms for adventurers, who, if they had any object in supplement to the love of gain, had only (and that was confined to the Spaniards and Portuguese) the desire of propagating the Catholic faith. But a barren shore, without water, and without a single vegetable or mineral that could be turned to purposes of profit, had no mercantile charms ; and hordes of “ hideous naked savages,” houseless, and without any property, and who would not have hesitated one moment in spearing the Pope himself, were not the most promising among whom to seek converts, or to hope for the support of a mission.

These unfavourable reports regarding New Holland turned the attention of navigators, for some time, to the islands farther to the north and east. Various discoveries were the result ; but as the people were a little advanced in civilization, and as they were in general warlike, and probably had not what their visitors would have thought an equivalent for the labour of conquest, they were allowed to remain undisturbed. There were, no doubt, a few exceptions ; but up to this period the treatment

which the visited met with at the hands of their visitors, were calculated rather to provoke than to soften down those violent and momentary impulses of passion to which uncultivated human beings are subject. They hesitated not to perform the most cruel, wanton, and even absurd acts of aggression. "The savages," instead of meeting with that kindness and pity for which their condition would have called, were subjected to the most inhuman treatment, had their little property taken from them, without return, and they were not unfrequently made slaves by force.

A better state of things was soon, however, to be introduced; and England and France had the high honour of taking the lead and setting the example. The earliest objects of the English were no doubt the capture of the Spanish treasure, which the Galeots were in the habit of carrying from South America, across the Pacific, to Manilla, in the Philippines; but though they committed a few excesses, their conduct at the islands at which they touched was not so reprehensible as that of their precursors. When voyages of discovery, under the patronage of the French and English governments, and without any view to the individual gain of the parties, or the harassing of the natives, though not without reference to the ultimate establishment of such settlements as might lead to an extension and improvement of commerce in those seas, began to be made, information assumed a different shape.

The first of those voyagers who made any thing like a disclosure of the extent and value of the eastern coast of New Holland, was the illustrious Cook. In the course of the return from his first voyage, which was rendered more interesting by the presence of Dr. Solander and Sir Joseph Banks, the land of New Holland was made on the 19th of April, 1770. The whole line of the east coast, nearly two thousand miles, from Cape Horn in the south, to Cape York in the north, was examined; though, in consequence of the manner in which the rocky heads and sandy downs on the coast overlap each other, many of the inlets and natural harbours, which subsequent discovery has revealed, were not suspected to exist. The coast was called New South Wales, and Captain Cook took possession of it in the name of his sovereign, mentioning Botany Bay as the best, or at least the most convenient harbour. This arduous undertaking occupied the whole of the time till August, the winter of the year in the southern hemisphere; and it was attended with great difficulty and danger, more especially on the northern half of the coast, where the trade wind is apt to be interrupted by gales from the north-east, and where the coral reefs often rise, perpendicularly, from a depth where there are no soundings to within a few feet of the surface. On one of those reefs Captain Cook's ship (the Endeavour) was placed in the most imminent danger, though, fortunately, as the event turned out, those on board were not aware of the

extent of it at the time. The ship, when making considerable way, struck at once on a reef, with a violent shock and crash, but instantly got into depth again without making much water. When, however, they put into a port, they found, to their astonishment, that one of the hard and sharp points of the coral reef had pierced the bottom of the vessel quite through, and that nothing but the firmness with which it was jammed into the aperture had saved them from the loss of the vessel, and probably of their own lives—certainly of the valuable collections which the scientific gentlemen had made in the south sea.

The coast of Van Diemen's Land, southward, had been partly examined by Tasman on the first discovery; by the unfortunate Marion (who was treacherously murdered afterwards by the natives of New Zealand,) in 1772; also by Captain Furneaux, of the Adventure, in 1773; and the latter having given it as his opinion that there existed no opening between New Holland and Van Diemen's Land, Captain Cook did not, upon his visit to that country in 1777, add the discovery of Bass's Strait to the other trophies of his nautical skill.

But, though Australia had been thus often visited, and the coasts to the west, north-west, north, and east, laid down with considerable accuracy, the little knowledge that existed was confined to the mere shores, which had not been found any where to wear a very promising appearance. On this account, the countries, extensive as they were, had not been looked

upon, with a view either to commercial advantage, or to colonization. Toward the close of 1786, however, the Commissioners of the British Navy advertised for vessels to convey from seven to eight hundred convicts, of both sexes, to a settlement to be formed by them, under the requisite officers and guard, on the coast of New South Wales; and the first intention was that it should be on the coast of Botany Bay. Captain Arthur Phillips was appointed to the command of the squadron, and also to the office of governor, as soon as they should land at the place of their destination. He hoisted his flag in the Sirius, with Commander Hunter as second, and Lieutenant Ball as third in command. Captain Phillips had six transports and three store-ships in company, and a detachment of about two hundred soldiers, officers and men, were distributed among the ships. The number of convicts taken out, was seven hundred and fifty-seven, of which, one hundred and ninety-two were women. This fleet sailed from England on the 13th of May, 1787, and after touching at Teneriffe, steered for Rio Janeiro, where they provided themselves with plants, or seeds of coffee, cocoa, cotton, banana, orange, lemon, guava, tamarind, prickly pear, rose apple, ipecacuanha, and jalap. Leaving Rio, they steered for the Cape of Good Hope, where they augmented their stock of vegetables for culture, by the fig-tree, the sugar-cane, the bamboo, the Spanish reed, various species of the vine, the apple, the pear, the quince, the strawberry,

the oak, and the myrtle. They also took on board, at the Cape, a limited number of horses, cattle, sheep, goats, and hogs, to have at least a chance of extending and continuing the breed of those animals in the new colony. On the 20th January, 1788, they anchored in safety in Botany Bay. They had been out eight months, including stoppages, and during that time they had passed over a distance of about sixteen thousand miles, equal to nearly two-thirds of the circumference of the globe. The progress of the colony will be traced in another chapter, so that the notice here may be confined to the discoveries which were made in the geography of the coasts.

On landing at Botany Bay, they found the country barren, and the supply of fresh water deficient, so that they resolved to seek for a more eligible abode. Accordingly, a party set out in three boats, and discovered the large and commodious harbour of Port Jackson, which, with its coves and shores, seemed so promising, that Governor Phillips resolved to make it the seat of his infant colony. Returning to Botany Bay, and being in the act of taking up the anchor, in order to sail round to Port Jackson, they found two strange sail in the offing, which proved to be the two ships under the command of the ill-fated Peyrouse, who was subsequently lost in the Australian seas.

The first expedition of discovery was made toward the north, about three months after the land-

ing of the colony. The result of that was the discovery of Broken Bay, the estuary of the River Hawkesbury, which they found to have many lateral coves or creeks, like Port Jackson, and to exceed that harbour in magnitude; but the country around it was barren, and they were not then aware of the existence of the large river of which Broken Bay receives the waters. On the 6th of July, the governor made another excursion to Broken Bay, upon which occasion he discovered the Hawkesbury River; and returning again on the 14th of the same month, he explored the river for a considerable distance. The soil along the banks of this river seemed of excellent quality, and to one eminence, on account of its beauty, the name of Richmond Hill was given.

As the results of the minor excursions on the coast, and into the interior, will have to be described in another place, they need not be noticed here.

In the beginning of the year 1798, a more important discovery was made. Mr. Bass, surgeon of the Reliance, obtained permission from the governor to explore, in an open whale-boat, the coast to the south of Botany Bay, in the course of which Twofold Bay was explored. His report of the coast was not the most favourable, the soil being in general barren, and there being a deficiency of natural harbours. Bass, however, brought with him, not the actual discovery of the strait that now bears his name, but a firm conviction of the existence of such a strait. As he proceeded to the southward, near the latitude of Cape

Howe, he met with a heavy swell from the westward, such as could not come from an inland sea, but must, in his opinion, have had its origin in the south part of the Indian ocean,—the general course of the winds, and consequently of the swell, upon which is from the south-east. As the southern coast of Van Diemen's Land is rugged and stormy, and as it adds to the length of the voyage between Sydney and the Cape, the existence of a passage further to the north was an object of much interest.

Accordingly, in November, 1798, Mr. Bass accompanied Lieutenant Flinders, in the Norfolk, a small decked boat, to examine the passage, if any such existed. After examining Twofold Bay, and the sandy coast in its vicinity, the Norfolk passed Cape Howe, and came to the group called Furneaux's islands, in about  $40^{\circ}$  south latitude. They anchored under Preservation Island, the most south-westerly of the group; and found it a mass of granite, strewed with large blocks of stone, the intermediate spaces being covered with sand, interspersed with some vegetable mould, and occasionally clothed with shrubs. Over the granite, in some parts of the island, there was a considerable quantity of chalk, or lime-stone.

Altogether, the island was a singular one; and one of the most remarkable appearances in it was that of petrified stumps of trees. Amid a patch of naked sand, upon one of the highest points of the island, at not less than one hundred feet above

the level of the sea, within the limits of a few hundred yards square, were lying scattered about, a number of short broken branches of old dead trees, from one to three inches in diameter, and seemingly of a similar kind to the large brush-wood. Among these broken branches were seen, sticking up, several white stony stumps, of sizes ranging between the above diameters, and in height from a foot to a foot and a half. Their peculiar form, together with a number of prongs, of their own quality, projecting in different directions from round their base, and entering the ground in the manner of roots, presented themselves to the mind of the observer, with a striking resemblance to the roots of small trees. They were extremely brittle, many of them when taken into the hand, breaking by their own weight.

On being broken transversely, it was immediately seen that the internal part was divided into interior or central, and exterior or conical. The exterior part, which in different specimens occupied various proportions of the whole, resembled a fine white and soft gritstone; but acids being applied, showed that it contained a considerable portion of calcareous matter. The internal or central part was always circular, but was seldom found of the same diameter, or of the same composition, in any two stumps. In some, the calcareous and sandy matter had taken such entire possession, that many fragments of the wood were obliterated; but yet a faint central ring

remained. In others was a centre of chalk, beautifully white, that crumbled between the fingers to the finest powder; some consisted of chalk and brown earth, in various quantities, and some others had retained a fair portion of their woody fibres, the spaces between which were fitted with chalky earth.\*

More early visitors of those very singular petrifications, had found them in a different state, with the stems of dead wood still standing on them, of the same diameter as the stony part, and upon the top of one there was a living leaf. The petrification had taken place only near the surface of the ground; for, upon removing the sand to the depth of three or four inches, Mr. Bass found the roots brown and crumbling, and of the ordinary consistency of rotten wood. Every root, however, so far as he examined, that came near to the surface, was petrified there, even though that might not, in the case of roots taking a central bend upwards, be the case, either with the part nearer the tree, or that farther from it.

They landed on Barren Island, another of the group, situated to the north-east of Preservation Island, and of much larger dimensions. This island they found deserving of the name that had been given to it, and yet, though the vegetation was both scanty and bad, the island, as did also the other island, though equally barren, swarmed with the small black kangaroos;

\* Collins.

and the adventurers found upon it the Wombat, which is equally remarkable for its form and for the gentleness of its manners, until it feel actual pain. Mr. Bass caught one, which he carried upwards of a mile, first on the one arm, and then on the other, yet it made no struggle or attempt to escape. When, however, he tied its legs, that he might prevent its escape while he picked up some other specimen, it hissed, kicked, and bit, and was not appeased till it had exhausted itself with its efforts.

Leaving Furneaux's islands, the Norfolk stood to the south-west, and on the 4th of November discovered Cape Portland, the north-east point of Van Diemen's Land, with Waterhouse island, bearing west-south-west. Coasting still to the south-west, they came to Port Dalrymple, which they entered, and were carried rapidly up by the tide. The shores were beautiful, and there was a great deal both of wood and of pasture grass. They observed a number of kangaroos, and on the river there were countless flocks of black swans.

Leaving Port Dalrymple, they passed the north-west cape of Van Diemen's Land, and proceeded south the west coast to South-west Cape, which they doubled, and soon after entered the estuary of the Derwent on the south side of the island. They proceeded a considerable way up in the boat, landed, had some friendly intercourse with a native, returned to the vessel, and, coasting down the east side, returned to Port Jackson on the 12th of January, 1799.

having satisfactorily proved the existence and practicability of the strait ; and they described the island which they had circumnavigated, as better adapted for common agricultural purposes, than the land about Sydney. This was the first native, or rather colonial discovery of any importance ; and it was highly prized in the colony,—the timber of the Norfolk being made into snuff boxes and other trinkets, upon which a considerable value is set.

Mr. Flinders made some farther discoveries on the coasts to the north of Sydney, before he entered upon his more important survey, under the instructions of the government at home.

In 1792, Bruni D'Entrecasteaux sailed with two vessels, in search of La Pérouse, and had on board surveyors and naturalists of eminence. They explored with considerable care the south-west coast, near Cape Leeuwen, and especially the south coast of Van Diemen's Land. At the same time Labillardier made collections of plants, from which *Nova Hollandiae Plantarum Specimen* was published. But as it applied only to the south-west coast, and to Van Diemen's Land, it has been completely eclipsed by the more extended labours of the eminent botanist Brown, who accompanied Captain Flinders in his voyage of discovery, and by Brown's able successor Cunningham, who is still in the country, and continues to be indefatigable in his researches.

In 1800, another French expedition was fitted out, under the command of Commodore Baudin. It

consisted of two armed vessels, *Le Géographe*, and *Le Naturaliste*; the object seems to have been not only to examine the whole of the coast, but also to change the nomenclature of the places. They passed through Bass's Strait, after examining the south coast of Van Diemen's Land, and, running along the south coast of New Holland, they made Cape Leeuwen, and doubling that, explored the bay into which the Swan River enters, and coasted northward by Edel's and Endracht's Lands. Among the small islands to the east of North-west Cape, they met with a difficult navigation; and as disease had begun seriously to affect them, they sailed for Timor to refit. From Timor they sailed direct for Van Diemen's Land, in order to explore more carefully D'Entrecasteaux Channel, Bruni Isle, and the coast of the principal island. This channel they had discovered on their previous visit; and to the discovery they attached much importance, as it affords a passage into the Derwent, and up to Hobart Town, comparatively free from the violent storms that occur in the wider entrance on the east side of Bruni Island. In this voyage, the nautical part and the care of the crews, do not appear to have been very skilfully conducted; for, after some months on shore at Timor, short time as they had been at sea, the scurvy again made its appearance; and so, after examining the bays leading to the Derwent, and particularly the singular basaltic formation at Adventure Bay, on the east coast of Bruni Island, they

sailed for Port Jackson. Indeed this expedition, though very promising at the outset, added but little to the Geography of Australia.—Owing to some cause or other, Commodore Baudin appears to have kept at too great a distance from the coast.

An expedition of great promise, though disastrous in the final result, sailed from England on the 18th of July 1801. This consisted of the *Investigator*, a vessel of 400 tons, under the command of Flinders, who had from his infancy shown the most ardent desire for that kind of service, and who was already well acquainted with those seas. He had on board Messrs. Robert Brown, naturalist; Mr. Ferdinand Bauer, painter of natural history; Mr. W. Westall, landscape painter; and Mr. John Crosby, astronomer: all active and eminent in their professions; together with a gardener, miner, and the requisite number of officers, seamen, and marines. Thus they were prepared to take advantage of every novelty with which they could meet. The time of equipment and sailing was during the short peace of Amiens, and Flinders was furnished with a passport from Bonaparte, then First Consul, so that he should not be molested by any French vessel or squadron with which he might meet in the distant regions that he was instructed to explore. The astronomer, not being able to bear the voyage, was left at the Cape of Good Hope, so that both the navigation of the vessel and the astronomical observations devolved upon Captain Flinders. They made the land off Cape Leeuwen on

the 6th of December, and though that cruise was not included in their instructions, the whole line of the south coast was examined, and much important information, in the natural history of the country, the hydrography of the coast, and of the numerous islands with which it is spotted, was the result. The same attention was paid to Bass's Strait,—which had been examined before by the same navigator, in concert with Mr. Bass.

On this service they were occupied till the 9th of May, 1802, on which day the investigator anchored in Sydney Cove. One of the French discovery ships, *Le Naturaliste*, Captain Hamelin, was in the cove, when Flinders landed ; and, soon after, *Le Géographe*, Commodore Baudin, appeared. The condition to which the crews were reduced by scurvy was truly wretched ; and the kind treatment that they met with from the English colonists formed a remarkable contrast with the treatment that Flinders subsequently met with from the French (the *authorities*, however, and not the *people*) at Mauritius.

Having completed his complement of seamen, and taken the brig *Lady Nelson*, Lieutenant Murray, in company, Flinders sailed from Port Jackson on the 22d of July ; and made a running course along the coast, as far as Breaksea Spit. They made a landing in Hervey's Bay, immediately behind the spit, and had some intercourse with the natives, whom they found to be better fed than the natives of Port Jackson,—to subsist by fishing with scoop

nets, and ignorant of the use of the throwing stick, and also of the Port Jackson language, as spoken by Bongaree, whom they had carried with them as interpreter. Proceeding northward along the coast, they explored the different bays as far as Broad Sound, about latitude  $22^{\circ}$ , and then stood off the land to examine the islands and reefs. On the whole of this line of coast they found the natives well fed, and disposed to be friendly. They observed a good deal of timber in many places; but of the ground much was very stony, and many of the low lands, though grassy, bore evidence of having been flooded.

They continued their important survey of the Barrier Reefs, northward to Murray's Islands, to the eastward of Torres' Strait, which they reached toward the end of October. As the Lady Nelson proved a bad sailer, and an injury rather than an assistance, she was returned from the reefs, and the Investigator proceeded toward Torres' Strait alone.

Clearing the difficult navigation of the strait, Flinders proceeded to survey the whole shores of the Gulf of Carpentaria, on the greater part of which nothing of interest was met with,—only the natives, in their habits, though not in their language, bore a much closer resemblance to those of Port Jackson, than they who had been met with on the east coast, between Breaksea Spit, and Broad Sound.

Upon examining his vessel in the Gulf of Carpentaria, Flinders had the mortification to find that great part of the timbers were rotten; and that

therefore he could not complete, as he had anxiously hoped, the survey of the north and north-west coasts, without the certainty of destruction, both to himself and all on board. Hence he was obliged to content himself with completing the survey of the gulf, and the islands at the western part of its entrance ; and then sail for Timor, in order to obtain such repairs as were to be found there. These being accomplished, they returned by the west coast, and examining some parts of the south, which had not been minutely surveyed on the passage from England, they arrived at Port Jackson on the 10th of June, 1803. They had suffered a good deal from fatigue, and also from dysentery, which attacked them as they were beating against a foul wind to the westward of Port Jackson.

The Investigator proving unfit for service, and there not being in the colony another vessel fit for the purpose, Flinders resolved to take a passage for England in the armed vessel, Porpoise, in order to solicit from the Admiralty a ship more calculated for braving the hardships of so dangerous and adventurous a navigation.

On the 10th of August he sailed in company with the Cato of London, and the East India Company's extra ship Bridgewater, and met with nothing remarkable during the first week ; but, exactly on that day week on which they left the harbour, as they were standing northward with a look-out on the forecastle, the top-sails double reefed, and every other

precaution, about half past nine at night, breakers were seen a-head. The Porpoise immediately attempted to tack ; but sail had been so much shortened, that she did not come up to the wind, but, drifting among the breakers, struck and heeled upon a coral reef with a tremendous crash. A gun was attempted to be fired as a signal to the other ships ; but the vessel had heeled so much that that was impossible ; and the foremast was overboard, the bottom stove, and the hold full of water. While the crew of the Porpoise were in this alarming situation, the other two vessels came close by, the Cato driving north-east, and the Bridgewater to the south ; and so near were they to each other, that the crew on the wreck, forgetting their own fate, were held breathless, in expectation of hearing the fatal crash of the collision. They parted, however ; but the Cato went on the reef at almost two cables' length from the Porpoise, while the Bridgewater disappeared. Soon afterwards she was observed in safety ; and Flinders, getting one of the boats manned, attempted to reach her ; but she was standing away from them, and approach was not possible—so that he returned, and lay in the lee of the breakers, near the Porpoise, that he might save her people if she went to pieces during the night. The ship held together ; Flinders got on board at day-break by the fallen masts ; when light came, he found that a part of the reef was dry ; and they succeeded in getting the crews of both vessels upon it, together with a quan-

tity of stores and provisions,—the latter, however, only from the Porpoise, so that Flinders, as the senior naval officer, took the chief command of both. The Bridgewater gave them no assistance, upon which Captain Flinders very naturally makes these observations:—“A top-sail yard was set up, and secured as a flag-staff, on the highest part of the bank, and a large blue ensign hoisted to it, with the union downward, as a signal to the Bridgewater. We expected, if no accident had happened, that she would come to relieve us from our critical situation so soon as the wind should be perfectly moderate; but I judged it most prudent to act as if we had no such resource, and this was justified by the event. —Captain Palmer had even then abandoned us to our fate, and was at the moment steering away for Batavia, without having made any effort to give us assistance. He saw the wrecks, as also the sand-bank, on the morning after our disaster, and must have known that the reef was not at all connected, since it is spoken of by him as lying in patches; but he did not seek to ascertain whether any of the openings were passable for the Bridgewater, and might enable him to take those on board who had escaped drowning. He bore away round all; and whilst the two hopeless vessels were still visible from the mast-head, passed the leeward extremity of the reef, and hove to for the night. The apprehension of danger to himself must then have ceased; but he neither attempted to work up in the smooth water,

nor sent any of his boats to see whether some unfortunate individuals were not clinging to the wrecks, whom he might snatch from the sharks, or save from a more lingering death ; it was safer, in his estimation, to continue on his voyage, and publish that we were all lost, as he did not fail to do, on his arrival in India."

When all were landed on the bank, they found that they had three months provisions ; and so they set about making an encampment, and also preparing the cutter for sailing for Port Jackson. On the 26th of August, Flinders sailed for that port in his little bark, which he reached in safety on the 8th of September, after a passage of about eight hundred miles in an open boat. There he obtained the ship *Rollo*, bound for China, and two colonial schooners, getting permission to sail himself in one of them—a little thing of twenty-nine tons—for England. After an absence of six weeks, Flinders anchored his little vessel under the bank ; and the return of their gallant deliverer was hailed by the people there by cheers, and the discharge of guns which they had landed from the wreck. "The pleasure of rejoining my companions," says the gallant officer, "so amply provided with the means of relieving their distress, made this one of the happiest moments of my life."

A remarkable instance of the coolness of a British seaman occurred upon this occasion : the sailors had been on the watch ; and, discovering the vessels, one

of them ran to Lieutenant Flinders, the brother of the commander, who had charge in his absence, and was busy calculating some lunar distances, calling “Sir, Sir! a ship and two schooners in sight!” “I dare say it is my brother come back; let me know when they come to the anchorage,” said the lieutenant, and resumed his calculations.

After completing the survey of the bank, sowing some useful vegetables upon it, taking the people from it, and dividing them into parties—to proceed to China in the *Rolla*, back to Port Jackson in one of the schooners, and with himself in the other—Flinders sailed for Torres’ Strait, made some new observations there, and also at Wessel’s Islands, sailed for Coepang, in Timor, and thence to the Mauritius, where, under various absurd and frivolous pretences, he was kept prisoner from the 17th of December, 1803, till the 10th of June, 1810. The pretended cause was, that Flinders had come as a spy; but he was ignorant of the war, had a passport, and had witnessed and borne a part in the attentions paid to the squadron under Baudin when at Sydney. The real cause seems to have been a wish to keep back the charts and journals of Flinders (which were known to be much superior), till those of the French expedition had been published.

The shipwreck of Captain Flinders’s vessel, and his detention at the Isle of France, left the north-west coast of New Holland still imperfect as to the details. It was desirable that this deficiency should

be supplied. Accordingly, early in the year 1817, orders were issued to Captain Philip P. King, to examine the unexplored coast from Cape Arnhem, on the west of the Gulf of Carpentaria, westward to North-west Cape ; to be attentive to climate, seasons, soil, and natural history, as well as the geographical positions ; and particularly to examine the Archipelago at Rosemary Island,—as, on the part of some, there was still a sort of opinion that there would be found behind those islands either a salt water opening or the mouth of a large river ; and, at that time, there were not wanting those who asserted that the Macquarie River, which two years before had been traced one hundred and fifteen miles to the westward of the Blue Mountains, found its outlet somewhere in the same quarter.

With a crew of eighteen persons, including Mr. Cunningham the botanist, and Bongaree the native, who had sailed with Flinders, in the capacity of interpreter, Lieutenant King sailed in a cutter of eighty-four tons, armed with a carronade, and twelve muskets not in the most serviceable condition. The westerly monsoon being against them in Torres' Strait, they made for Bass's, which, after some difficulty, they passed, and came to an anchor in Oyster Harbour, King George's Sound, on the 21st of January. Wood and water are easily procured in this harbour, and when once entered, it is safe and commodious ; but the water on the bar is so

shallow, that it is inaccessible to any but small vessels.

As the health of Lieutenant King's little crew was now such as to prevent him from exploring any part of the coast between Cape Leeuwen and Northwest Cape, he stood outside the reefs, until he made the land southward of that cape on the 11th of February. The Cape is of some elevation, but the land to the south declines, and the whole is dry and sterile. It was here that King's labours were to commence, as the coast north-eastward had been seen only at detached points by the French squadron, and might therefore contain extensive inland seas or the estuaries of rivers. After doubling the Cape, and passing between the coast and the reefs, the course was southward; and as the land now interposed its naked and sultry ridge between them and the wind from the Indian Ocean, the heat was excessive, and the air loaded with insects. The sea also teemed with fish, among which the turtle was remarkable for its value, and the dolphin for its activity and beauty. In Exmouth Gulf, to the south-east of the cape, the navigation was dangerous, —there were many shoals, and the bottom was rocky, and ill adapted for anchorage. They examined the bay, till there was no reason to conclude that it could either open to a large extent of salt water, or receive a large body of fresh. Skirting the other side of the bay, north-east to Dampier's Archipelago, a dis-

tance of about two hundred miles, they found it in general flat and sandy, with a few patches of wood,—the water in some places so shallow that even their little vessel could not approach the shore, and the bottom at others foul with rocks. Thus the inutility of this much of the coast, for every purpose of navigation, was a point completely settled.

When they had examined the coast to the longitude of about  $117^{\circ} 30'$  east, the monsoon from the west began to fail, a hand gale from the south-east drove them from the coast, and they passed by Rowley's Shoals, about  $250^{\circ}$  north-east of the place where they had lost sight of the main land. Standing to the north-east, they passed the latitude of Cape Van Diemen, and then steered south-east, in the hope of being able to recommence their survey at Cape Arnheim, the first headland on the west of the Gulf of Carpentaria; but the wind was against them, and they made the land about two hundred miles farther to the west, and nearly midway between that point and Cape Van Diemen. The shore, as they coasted along, seemed more fertile than that toward North-west Cape; but the season was toward the close of the rains, when vegetation is at its greatest perfection. The soil was not rich, but it was covered with grass, and the presence of palms, chiefly the fan-palm and *areca*, the latter of very considerable dimensions, gave a tropical character to the landscape.

Proceeding westward, they came to a peninsula of

a very irregular shape, to the west of which lay two islands, to which they gave the names of Melville and Bathurst. Cape Van Diemen is on the former of those islands, and not upon the mainland. Hoping that the channel between those islands would prove to be the entrance of a large river, they explored it, and found it to lead to Van Diemen's Bay, an inland sea of some dimensions, which had been previously seen by the Dutch, but not examined. They examined it, and found some small rivers, which abounded in alligators. The country around was a level plain, interspersed with some wooded hills, and a few palm-trees. The soil and vegetation of the islands appeared to be much better than those on the mainland ; but every where the natives appeared to be hostile and treacherous, which may be, in part, owing to the resort of the Malays to those seas, which they do every summer to fish for trepang. At those islands the survey closed for the season ; and the Mermaid, after standing across to Coepang, in Timor, to refit, returned by the south to Port Jackson. Thus about five hundred miles of the north-west and north coasts had been examined ; and though not so minutely as the commander could have wished, in consequence of the loss of their anchors almost at the very commencement, yet it had been ascertained, beyond doubt, that there could be no internal opening of consequence, either in Van Diemen's Gulf, or behind Dampier's Archipelago, farther to the south-west. The only

parts of those coasts that remained to be examined were about two hundred miles from the Gulf of Carpentaria westward, and about a thousand miles from Bathurst Island to Depuch Island, where the gale had first driven Lieutenant King from the coast.

Having in the interval taken a trip to Van Diemen's Land, for the purpose of correcting the surveys of the entrance to Hobart Town, Lieutenant King again sailed for the west coast on the 8th of May, 1819, and was accompanied by Lieutenant Oxley, in another vessel, as far as Port Macquarie, in order that a survey of it might be made by the two in company. This service being completed, Lieutenant King proceeded toward the north, though without any particular instructions to examine the coast, till he came to Arnheim's Land, as the intermediate part had been examined by Cook and Flinders. Still, by making his passage inside the reefs, which are very numerous off that coast, he not only found that the passage that way is more short and safe, but that there are many good places for obtaining wood and water, and safe anchorage, for any time that that may be necessary. From Cape York, Lieutenant King stood across the Gulf of Carpentaria for Cape Wessel, the northmost point of the group of islands that stretch to the northward of Cape Arnheim, from whence he traced the line of the coast to the commencement of his former survey, but without meeting with any thing of peculiar

interest. Passing on to the termination of his former labours at Van Diemen's Bay, he examined the strait on the south side of Melville and Bathurst Islands—he examined the coast to the south-east, and about longitude  $128^{\circ}$  east, found a bay which penetrated a considerable way to the south, indeed till it had become an inconsiderable creek, and continued to be salt water, and therefore could not be the estuary of a river of any considerable size. From this inlet the coast, which, with various sinuosities, and many islands and shoals, makes a curvature to the north, was examined westward to within the 126th degree of east longitude, without any appearance of an opening. At that point, the westerly monsoon, as well as the damage that the vessel had sustained, and the loss of anchors, rendered a return to Sydney necessary. On this voyage a farther survey of more than five hundred miles of the coast had been obtained.

In the summer (the Australian winter) of 1820, Lieutenant King again sailed; but met with more disasters than ever on the east coast. Little progress was made that year, on account of the difficulty of the navigation and the crazy state of the vessel; and thus it was necessary to return a third time to Sydney.

A vessel of a larger burden and more numerous crew was provided, and a fourth departure from Sydney took place in the end of May, 1821. A little to the south of Cape York, the anchors were

again lost ; but the vessel proceeded, and reached the point where the former survey had closed. The navigation this year was very difficult : and among the numerous islands of Buccaneers' Archipelago, from long.  $124^{\circ}$  to  $122^{\circ}$  east, there were violent currents of tide, from which the commander was led to conclude that there may be there a number of islands to the south, though, as all the openings that he examined are shallow, there cannot be any very large inland sea.

Finding that the survey could no longer be continued with safety, Lieutenant King sailed for the Mauritius, whence he returned to King George's Sound ; and in the beginning of January sailed for the west coast, which he run along, generally in sight of land, as far as North-west Cape. From North-west Cape he sailed for the scene of the last of his former labours ; and after running the greatest dangers from shoals, islets, and violent currents of tide, found it impossible to settle the point whether there be or be not an inland entrance to the eastward of Cape L'Evêque. He, however, did enough to shew that if there be such an entrance, it would be far from safe for the purposes of navigation. Thus by the labours of navigators, up to the time of Captain King, who was promoted to the rank of commander while on his fourth voyage, the details of the whole coast of Australia have been pretty well made out, with the exception of about five hundred miles of the north, from the termination of Captain King's survey east-

ward from North-west Cape, to that of the same westward from the Gulf of Carpentaria. It is understood that Captain King may soon be appointed to complete this examination; and when it is accomplished, the grand features of New Holland, as discoverable by navigation, may be held as being known; and the details must be left to the slow progress of local research. The knowledge of the whole coast, with the exception above mentioned, now rests upon the evidence of British navigators, as the examination of the Swan River by Captain Stirling in 1827, has taken it out of the list of places seen and described only by Baudin and his co-navigators; and the reports of the French commodore and the British captain are so different, that, in consequence of their discrepancy, suspicion would have been cast upon any information which rested on the French authority, without other verification.

## CHAPTER VIII.

## SKETCH OF THE COLONIES AND SETTLEMENTS.

## I. NEW SOUTH WALES.

THOUGH that name is by no means appropriate, inasmuch as the east coast of New Holland, to which, generally, it is applied, has nothing peculiarly like Wales, either in the country itself, or in the European part of the population; yet it has been so generally used, that a change, even for one much more descriptive, would be attended with inconvenience.

New South Wales comprises not only the country in the neighbourhood of Port Jackson, which may be regarded as the parent colony, but also those farther to the north, as well as the grazing settlements to the westward of the Blue Mountains. The governor, who resides in this district, is also Gover-

nor General of all the settlements in Australia, the distant ones being under local deputies.

New South Wales is divided into the following provinces: Cumberland, Camden, Argyle, Westmoreland, Northumberland, Roxburgh, Londonderry, Durham, Ayr, and Cambridge.

CUMBERLAND, extends about fifty miles along the coast, from the confluence of the Hawkesbury with the sea, to the coal cliffs southward of Botany Bay, and the commencement of the forest of Illawarra. Its inland boundary follows the course of the Hawkesbury and Nepean, to the sources of that branch which has been called the Cow Pasture River. Thus its greatest breadth from the Heads at the entrance of Port Jackson to Emu Ford on the Nepean, may be about forty miles. Though, with the exception of the banks of the Hawkesbury, and of that part of the Cow Pasture Plains that lies seaward of the Nepean, Cumberland is not the most fertile part of the colony, yet it was the first settled, and is still the best cultivated and most populous. Containing the capital, it is the place where the most wealthy of the settlers reside, and the centre both of commerce and intelligence. Many of the seats in it are handsome, and some elegant; and, unless when there is a want of rain or a visitation of caterpillars, by either of which the vegetation is destroyed, it wears an appearance of considerable luxuriance and beauty. Toward the sea coast, and, generally, at a distance from the banks of the rivers, the greatest disadvan-

tage under which Cumberland labours is a want of water. On the sandstone formation toward the sea, this is of course to be expected ; and though when tanks are formed in the argillaceous strata, the water be more easily retained, it is apt to become, more especially in the dry season, impregnated with the aluminous salt which is so abundant in the soil.

A belt, of about six miles in breadth, along the whole sea coast of Cumberland, is remarkable for its sterility and want of timber. It is wholly unfit for cultivation, but clothed with flowering shrubs of the greatest beauty. Behind this there is a thick forest of eucalyptus and casuarina, without under-wood, and with little grass. Then there are about five miles of an open forest, of much better soil, in which the trees are, upon the average, ten yards apart ; and from this forest to the banks of the rivers, there are plains of great fertility, but the lowest and richest are subject to the floods already mentioned. Though the surface of Cumberland be very much diversified, no part of it is high, and in the interior the soil is rich, upon the hills as well as the plains. The depth of mould on the latter is immense, and a single acre has, in one season, produced fifty bushels of wheat and one hundred of Indian corn. A soil of such depth is admirably calculated for fruit trees, and accordingly the orchards of the settlers are most luxuriant and productive, only, as the fruit ripens, the birds, especially parrots, are an intolerable nuisance.

CAMDEN lies to the south of Cumberland, between the Cow Pasture and Wingee-carribbee Rivers ; it includes the Illawarra district on the coast, and extends indefinitely toward the south. The appearance of this country is different from that of Cumberland : the coast, instead of a flowery heath, is a dense forest ; and the Merrigong Range, a considerable ridge of mountains, intersects the interior from north to south. Toward the rivers, on both sides of the range, but more especially on the east side, the plains afford very rich grazings. These are called the Cow Pastures, because in the early stage of the colony, the cattle escaped from the neighbourhood of Sydney, and were not found till after the lapse of seven years, when they were met with on those plains, greatly increased in numbers. Subsequently, their numbers have been very much thinned by the thievish and inconsiderate habits of the settlers, but for whom the plains of Australia might soon have been as well stocked with wild cattle as those of South America. Great part of the plains in Camden have latterly been settled, and have been found to answer well. Until the settlers shall adopt the same plan of retaining water in tanks that is followed in the south of India, they must suffer from occasional droughts ; but were that done, there is no question that the labours of the husbandman would be regularly rewarded over a large portion of this province.

The Illawarra district in this country has already

been mentioned as a close and valuable forest ; and it may now be added, that it is quite a topographical curiosity. It looks as if it had no connexion either with the latitude in which it is situated, or the regions that are adjacent, but as though it had been transported from the other end of the country. Its character is quite tropical, and various species of palms grow in it to a considerable height. The soil which nourishes all this vegetation must be rich ; and the country is either naturally, or might be, by means of tanks, completely irrigated. There are in the neighbourhood plenty of shells, which might be burnt into lime ; but the district is not of very easy access, either by sea or by land.

ARGYLE lies to the south-west of Camden, and consists of plains upon the banks of the Wolandelly and some other branches of the Nepean, and the country southward indefinitely toward the mountains. The southern part of this country is mountainous, and the climate, consequently, much colder than that of Sydney. Snow and hail are not unfrequent in the winter months. The wild cattle, which have been, to a considerable extent, expelled from the Cow Pastures, have taken up their residence in some parts of Argyle. Goulburn and Braedalbane Plains, on the Wolandelly, are by no means bad grazing, a purpose for which all this part of the colony is much better fitted than for the plough. Near the sources of the Wolandelly, though not communicating with that or any other river, there are two lakes, Bathurst

and George, the latter covering a considerable extent of surface ; but they are shallow, appear to be of recent formation, and the land in the neighbourhood is bad. Between those lakes and Shoal-haven River there is a considerable ridge,—the Goruck Mountains, which are understood to terminate southward in an extensive flat, destitute of timber,—to which the name of Brisbane Downs has been given. These downs, which are said to be about forty miles across, are represented as terminating toward the south in a ridge of mountains, so high as to be in winter completely covered with snow. On the west side of the downs, the rivers South Fish and Morumbidgee have their courses toward the west ; so that the downs, and the marshy country about the lakes, form the summit level ; and in all probability those rivers may be branches of one parallel to the Lachlan, on the south, and separated from it by a ridge similar to that which divides the Lachlan from the Macquarie. This cold and elevated part of the country abounds in Australian game—kangaroos, emus, and wild ducks ; but it does not hold out many temptations for settlers, as the soil is poor, and the communication with the coast difficult.

WESTMORELAND occupies the eastern slope of the Blue Mountains, from Argyle northward to the parallel at which the Hawkesbury falls into Broken Bay. The surface of this portion of the colony is very irregular, as besides the general chain of the Blue Mountains, lying north and south, there are

branches that stretch eastward, almost to the bank of the Nepean. One of these ridges, the King's Table Land, between Cox's River on the south, and Grose River on the north, affords a fine prospect of the country along the Hawkesbury and part of the Nepean, and also along the Grose, on some parts of which both the soil and the scenery are very inviting.

NORTHUMBERLAND occupies the sea coast from Broken Bay northward to Hunter's River; and extends indefinitely into the interior, which has not been completely explored. The sea coast of this country is far from promising; but many parts of the interior are understood to be fertile. The summit level in Northumberland is chiefly elevated plains, and not mountains; and the plains have the advantage of those in the south of Argyle, both in climate and in soil.

DURHAM extends along the coast from Hunter's River to Manning River, which falls into Farquhar's Inlet in latitude 32°. The sea coast is remarkably irregular; and the land, though hilly, is watered by a number of small streams. Toward the banks of Hunter's and Paterson's Rivers, there are large extents of fertile ground, and the high land in the interior is open, or has only partial brushes of timber.

AYR is the name given to the country on Port Macquarrie and the banks of Hastings' River. The surface of this part of the colony is very much diversified. There are many rivers, and also hills,

one of which, Sea View Hill, so called because the sea, though about fifty miles distant, is seen from the summit, has an elevation of nearly six thousand feet. The scenery in the interior is also, in many places, wildly grand ; but there are here and there extensive portions of rich soil, of which a number are so elevated as to be completely free from inundations. The forests in the richer places have the tangled, if not altogether the tropical character of the Illawarra. Mr. Oxley, who first explored this part of New South Wales, paints the general landscape, and particularly the valley of Apsley River, in the north-west of this country, in the most glowing colours. The following is an extract from the journal of his tour eastward from Liverpool plains, after he had traced the Macquarie River to the marsh in which it terminates :—

“ We proceeded up the Sydney River (a stream running northward on the east of the mountains that divide the eastern and western waters) to the south east about three miles, before we could find a convenient place to cross, as the stream ran with great rapidity over a rocky bottom. The country on either (each) side, sloped to the river with gradual declension, and was an open forest country. On crossing the river, we passed through some noble forests of stringy bark, growing generally on the sides and ridges of stony, barren hills. These forests extended about two miles from the east of the river, after which the country became perfectly open, and

of a level, or rather alternately rising surface. To the north and north-east, the river was beautiful, the same description of country extending as far as the eye could reach, with no elevated points or ridges to obstruct it. The determination of all the hills and slopes is northerly, and the rivers which we have crossed have taken the same direction. We proceeded nine miles farther through the finest open country, or rather park, imaginable. The general quality of the soil is excellent, though of a stronger and more tenacious description than farther westerly. We halted in a fine spacious valley, where art, so far as it is an auxiliary of beauty, would have been detrimental to the fresher and simple garb of nature. This valley was watered by a fine brook, and at a distance of a mile we saw several fires, at which appeared many natives. Upon discovering us, however, they immediately departed. I think that the most fastidious sportsman would have derived ample amusement during our day's journey. He might without moving, have seen the finest coursing, from the commencement of the chase to the death of the game; and when tired of killing kangaroos, he might have hunted emus with equal success. We numbered swans and ducks among our acquisitions, which in truth were caught without much exertion on our part, or deviating in the least from our course. Granite and a hard whinstone (rather unusual neighbours) were the most predominant among the stones; small pieces of quartz and loose rotten slates co-

vered the tracks, on which grew some of the finest stringy-bark trees that I ever saw. Indeed the other timber, which consisted chiefly of the common blue-gum, was far larger than usually seen on forest lands." But the whole country was not of this character; for when they had proceeded for some distance eastward among the mountains, they came to what would have effectually stopped the career of the most adventurous hunter. "This tremendous ravine," says Mr. Oxley, "runs nearly north and south; its breadth at the bottom does not, apparently, exceed one hundred or two hundred feet; whilst the separation of the outer edges is from two to three miles. I am certain, that in perpendicular depth it exceeds three thousand feet. The slopes from the edges were so steep, and covered with loose stones, that any attempt to descend them, even on foot, was impracticable. From either (each) side of this abyss, smaller ravines of similar character diverged, the distance between which seldom exceeded half a mile. Down them trickled small rills of water from the range on which we were. We could not, however, discover the way in which the water in the main valley ran, as the bottom was concealed by a thicket of vines and creeping plants." Indeed, though there had been no thicket, it would not have been an easy matter to ascertain the direction of the current, at a horizontal distance of a mile and a half, and an elevation of "more than three thousand feet." "How dreadful" (exclaims

the traveller) "must the convulsion have been that formed these glens!" Now the fact is, that there has not been any convulsion about the matter. The ravine, as Mr. Oxley afterwards found, was nothing but the bed of the river Apsley ; and whether the depth was three thousand or three hundred feet, the whole had been the working of the stream, in which, of course, the floods would very powerfully assist ; and if the channel be of the magnitude stated, it proves that the strata must be of a very soft description ; and further down the river, the spoils of this hill must form a deposition of vast size, enough to destroy thousands of acres.

The divisions which have been enumerated, comprehend the whole connected coast of New South Wales, from Bateman Bay in the south to Port Macquarie in the north, a distance of about three hundred miles, and stretching from the sea to the mountains or the summit level, where the water divides, and other rivers have been discovered running toward the interior. The whole of this district appears to have a threefold character. The shores, though they alternate of swamp, and heath, and barren rocks, may in general be considered as unprofitable for the settler, except where they are eligible for the foundation of towns, or productive in forest trees or coal. The intermediate parts are, where neither exposed to inundations or to drought, not ill adapted for agricultural purposes ; while the uplands are, to a great extent, fit for grazing, without any preparation but

that of procuring a supply of water for the stock. The remaining parts to the westward of the summit, to which, so far as they have been discovered, the names of Londonderry, Roxburgh, and Cambridge are given, appear also to consist of three kinds of country, though not exactly the same as those on the coast. Toward the Blue Mountains and the summit level, the lands are evidently best adapted for grazing ; the central track, where the limestone is found, must be fit for tillage, while the dreary and desolate country toward the termination of the rivers in the marshes, does not appear to be fit for any useful purpose.

**LONDONDERRY** is the portion of country to the west of Westmoreland, where there are a few small rivers that have not been traced to their terminations ; though, from the country farther down having been crossed to a considerable distance southward by Mr. Oxley, and found flat, barren, destitute of water at one season, and with the appearance of being flooded at another, there seems sufficient evidence for concluding that they all terminate as unprofitably for any purpose of intercourse as those that have been examined. The eastern portion of Londonderry, and also the part of it between the Lachlan and the Macquarrie, is of a better character ; and there is no question that it might, in time, remunerate those who would be contented to cultivate it, and live upon it. Cattle they might send to the coast country, though the road be both long and difficult ;

but grain would not be worth the carriage, and even wool would have its value much diminished to the grower.

ROXBURGH lies to the north-east of Londonderry, and to the west of Northumberland and Durham. The north and north-east of it are bounded by hills, the former rugged, and not easily passable. The western part of it slopes toward the Macquarie, and the north-eastern seems, from the formation, to be the upper valley of the rivers that fall into Port Hunter. There appears to be a considerable extent of good pasturage in this district ; but it is swampy toward the summit level. This part of New South Wales is, however, more promising, in its general features, than most others : there are rivers flowing from it in all directions, and, in every direction, they have been traced to a considerable distance.

CAMBRIDGE, which lies to the westward of Ayr, has the same character, nearly, as Roxburgh, only it is a little better in itself, and a little more inaccessible. This district is enclosed, on the east, south, and west, by ridges of mountains, in which there are but few passes, at least few have been hitherto discovered. There are also ridges running northward from the centre. The courses of all the rivers, of which a considerable number have been seen, are toward the north ; and from the appearance of the country on the north-west toward the Macquarie, it is most likely that the streams to the westward of the central mountains have short courses, and termi-

nate in marshy grounds. In Camden Valley, between the two ridges of the central mountains, York's River, which is larger than any of those farther toward the west, is described as flowing through a country that is better, and had not any appearance of becoming marshy so far as it had been seen. In the eastern part, between the central mountains, and those that form the boundary, the country is described as being still better. Peel's River there, which flows across the whole breadth of Liverpool Plains, is much larger than any other in the district ; and the country, which is about sixty miles in breadth, from the one ridge of mountains to the other, is reported as stretching indefinitely to the north, still of the same favourable character.

Indeed the more that the whole range of these inland countries is examined, the more evidence do they furnish for the establishment of these facts,—that they are good grazing lands in their present condition ; and that, were there any inducement, a considerable part of them might be brought under tillage. That, however, will not, in all probability, be the case for many years, at least as an object of commerce, unless some of the settlers in the more immediate neighbourhood of Bathurst, or any other station that may be formed, shall cultivate grain for the use of the military guard, the few artificers, and small tradesmen, that are needed at such places, or of those settlers in the neighbourhood who devote their attention exclusively to grazing.

**MORETON BAY.**—The banks of the Brisbane are represented as being about the richest land on the east side of New Holland. The climate, too, has much more of a tropical character than that about Sydney, and neither the flood in the river nor the drought is so destructive. The natives are also milder in their dispositions. All circumstances seem indeed to be in favour of this part of the country; and it is by no means improbable that, when the survey shall have been made more complete, it will be found, that the country opened by the Brisbane will prove to be larger, as well as better, than that upon any other river of New Holland. The settlement that has been formed is reported as increasing rapidly; but, unfortunately both for its physical and its moral improvement, its first settlers have been convicts. It is probable that there are portions of good soil on the east coast, farther to the north than Moreton Bay; but the coast is uninviting, and there appears to be a want of water in the dry season, and the water courses, which are then dry, are, during the rains, filled with foaming torrents, which destroy the soil. Indeed, a great part of the country, even where covered with wood, is so irregular, and so made up of loose stones, that it has the appearance of débris, swept together by an overwhelming flood.

**FORT DUNDAS**, on Melville Island, is to be considered more in the light of a place of call, to which vessels navigating those seas may repair in case of accident, than as a settlement, with a view to culti-

vation or trade. This little establishment was made by Captain Bremer, in the ship *Tamar*, toward the close of 1824. The men at first suffered severely from the burning heat of the climate, and the herbage proved fatal to their sheep. Malays frequently visit the coast for the trepang fishery, and the natives are, in consequence, familiar both with fire arms and with skirmishing. They also evince a thievish disposition, and hostilities have been the consequence. Even here, however, this disposition appears to be acquired, rather than natural. It is not to be supposed that their Malay visitors treat them with very much kindness; and yet a Malay, whom they had taken when a boy, appeared to be an object of general regard; and though they had spears, and threw them at the settlers, the spears were mostly rude, and their method of using them far less formidable than that of the natives about Port Jackson—so much so, indeed, as to show that the use of the spear is not the business of their lives, as it is of the others. The settlement at first consisted of one hundred and twenty-six individuals, of whom forty-five were convicts, and the rest chiefly soldiers and marines. There were only three or four women in the whole. The accounts from this distant spot are not very recent or precise—neither are they of much general interest, as Melville Island has but few attractions for intending settlers.

**KING GEORGE'S SOUND.**—Though the country about this sound be of very diversified character,

and considerable portions be covered with loose dry sand, there seems to be no want of water, and vegetation is very vigorous. Some notion of the power of vegetation, and also of that of the rains, may be formed from the following observations of Captain King. The first visit alluded to was in 1818, and the second in 1821. "On examining," says the Captain, "the place of our former encampment, it was found so much altered from the rapid growth of vegetation, that we could scarcely recognize its situation. There was not the least trace of our garden, for the space which it formerly occupied was covered by three or four feet of additional soil, formed of sand and decayed vegetable matter, and clothed with a thicket of fine plants, in full flower, that would have been prized in any other place than where they were. The initials of some of our people were still very perfect upon the stem of a large *Banksia grandis*, which, being covered with its superb flowers, bore a magnificent and striking appearance."

It is plain that there are here the elements of a productive country,—the accumulation of three or four feet of alluvial matter in the same number of years, and the clothing of it with rich and beautiful vegetation. We desiderate, however, a journal of the weather for a whole year, because this rapid accumulation upon the low land, near the beach, renders it not unlikely that the violence of the rains may sweep the whole of the mould from the high

grounds ; and, should that be the case, the rains on the south-west coast may prove as great an annoyance to the agriculturist as the drought on the east. But the information is too limited and vague for admitting of a final conclusion, whether the country be or be not an eligible place for a settlement.

**SWAN RIVER.**—From the general terms of condemnation which were bestowed upon the whole west coast of New Holland by the expedition under Baudin, and from its being taken for granted that the French commodore and his associates had looked at the coast with English eyes—that is, to see what it is mercantilely worth as a place to be settled for a convict station, or taken as a speculation, with a view of making a profit of those who might be inclined to go there with their property—it would appear that this part of Australia has lain under a weight that it did not deserve. On the other hand, it is possible that the subsequent reports of it may have gone quite as far the other way. The reports of Captain Stirling and Mr. Fraser, who first examined the country at the Swan River, are certainly favourable; and one would be disposed to conclude that the time at which they were made (March, answering to the September of the northern hemisphere) was no bad time for getting at the average of the year. It would have been as pleasant, at least as satisfactory, to have had a report of the weather during the opposite part of the year, or what may be considered as the growing season ; but, as has been already

mentioned, both winds upon that part of the coast bring rain, so that there is less danger of parching. The following is the summing up of Mr. Fraser's estimate :—

“ In giving my opinion of the land seen on the banks of the Swan River, I hesitate not in pronouncing it superior to any that I ever saw in New South Wales, east of the Blue Mountains, not only in its local character, but in the many existing advantages which it holds out to settlers. These advantages I consider to be,

“ First, the evident superiority of the soil.

“ Secondly, the facility with which a settler can bring his farm into a state of immediate culture, in consequence of the open state of the country, which allows not a greater average than two trees to an acre.

“ Thirdly, the general abundance of springs, producing water of the best quality ; and the consequent permanent humidity of the soil : two advantages not existing on the eastern coast. And,

“ Fourthly, the advantages of water carriage to his door, and the non-existence of impediments to land carriage.”

These, it must be admitted, are most promising qualities, though the absence of timber is not very reconcilable with superiority of the soil,—as, in all uncultivated countries, the want of timber indicates some defect either in the climate or the soil. The scanty soil upon the hills, the salt marshes on

the plain toward the sea ; the great accumulation of alluvion on the banks of the river, and the marks of flooding, though there is any thing but high land, (the hills thirty-three miles inland being only about fifteen hundred feet high, and an extensive flat behind, carrying the water beyond these hills the other way)—all these circumstances require either to be contradicted in practice, or explained away in theory, before the region of the Swan River shall acquire a permanent title to the name of “ Southern or Australian *Hesperia*,” which some describers have, in the greenness of their admiration, bestowed upon it.

In situation, the country on both sides of Cape Leeuwin bears some analogy to Southern Africa, and therefore it may be expected that there should be some similarity in the weather. There is, however, this difference, that both the seasonal winds bring rain ; while in Southern Africa there is burning drought during part of the year. This will in so far lessen the effect of the rains upon the soil, even though they should fall with as much violence as in Southern Africa ; and, as the river is ascended, the plains bear no marks either of being washed or flooded. But still there is enough of evidence to prove that the description that the French gave of the violence of the winter storms, is not altogether an exaggeration, though that violence was in no danger of losing at their hands.

It is further a favourable circumstance, that settlers from England are now much better acquainted

with the nature of those heavy rains which occur in the southern hemisphere than they were when New South Wales was first colonized; and experience, both at the Hawkesbury and in Southern Africa, may teach the settlers near Cape Leeuwin to keep their habitations, and also their produce, at a proper distance from the streams. With that prevention, if the heavy rains shall be found to fall only after the produce has been ripened and secured, there can be little doubt that the land will be productive, and, by all accounts, there is plenty of it. "We found," says Captain Stirling, "the country rich and romantic, gained the summit of the first range of mountains, and had a bird's-eye view of an immense plain, which extended as far as the eye could reach to the northward, southward, and eastward. After ten days' absence we returned to the ship; we encountered no difficulty that was not easily surmountable; we were provided with abundance of fresh provisions by our guns, and met with no obstruction from the natives."

In one important respect, the colony at the Swan River has the advantage over every other British colony.

In all the others, the labourers—who, composing the great majority of the population, must impress their own character, to a considerable extent, upon the whole of it—are a degraded or vitiated caste: or, rather, they are both, as the one of these can hardly be separated from the other. Indeed it would not be easy to determine whether the negroes of the

West Indies, or the convicts of Australia, have the most unwholesome influence upon the state of society. The comparison is ignorance with vice; and that ignorance may be taught, is fully as tenable a position as that vice may be reclaimed. It is, therefore, much in favour of the colony at the Swan River, that it is to be free from both.

The regulations which government have made upon the subject, are indeed very judicious, and do not involve that very doubtful doctrine, the relief of the country at home by the migration of the settlers. That doctrine is more than doubtful—it is *ex facie* absurd. It is useless to send those who are physically burdensome out of the country, because they must either be fed at the expense of the country or starve; nor is it much wiser to transport at the public expense those who are politically burdensome—those who can and would support themselves, but may not; because the country at home must lose all that has been expended in rearing them, without gaining any thing in return. Much as many other things are prized, full grown human beings, disposed and qualified to perform work, are the most valuable possessions of any country; and the exporting of them, in order to relieve it, is nearly a parallel case with throwing the sailors overboard in order to relieve a vessel that is overladen and caught in a storm. The lumber and the guns, and, in cases of great extremity, even a passenger or two, should go before these. The *relief* afforded by emigration to

Southern Africa and Canada, has had a salutary effect upon the conduct of government, in making them entrust the settlement at the Swan River to those who are in a capacity for emigrating,—that is, to those who have resources of their own upon which they can depend in the new country.

Government pays no expense, either in taking the people out, or in fetching them home again if they should feel disappointed or dissatisfied; neither does it furnish any provisions. Land is furnished to those only who are in a condition to turn it to account, government giving the land, and only demanding from those who get it the investment of the capital necessary for working it, and the actual cultivation, to a certain extent, within a stipulated time.

The capital required is after the rate of three pounds for every forty acres of land, or eighteen-pence per acre. The articles in which this capital is required to be invested, consist of every thing that can be useful to the settler in establishing himself, and bringing his land into a state of productiveness, including, of course, live stock, and agricultural and other useful implements; and half-pay, and other government pensions, are considered as capital in the same manner. When the possession of the requisite capital is proved, to the satisfaction of the local governor of the colony, a license of occupation for the corresponding quantity of land is given. The land is free to the settler, without quit-rent or other burden, from the time of obtaining the license; but

the title to the fee simple of it is not given until he shall, by cultivation, shew that he is worthy of it. That proof is to consist of improvements, such as roads, buildings, or other permanent works executed upon the land, to the extent of one shilling and sixpence for each acre. Three years are allowed for that purpose, and if, at the end of them, one fourth of the grant has not been cultivated to the value of one and sixpence an acre, the settler must pay a rent of sixpence an acre into the public chest or treasury of the colony. Another trial is, however, given before the settler finally forfeits his original title. This trial lasts for seven years longer, and if at the end of them the land remain uncultivated or unimproved, it reverts to the crown, and may be disposed of. In one respect, this part of the regulations is not very specific: it is by no means improbable that a considerable part of the land will be found to answer better for pasture than tillage, and it is also probable that the victualling of ships, whether South Sea whalers, or vessels bound to or from China, may be among the first mercantile employments of the colony: so that it would have been desirable to state explicitly, in the government regulations, whether the general term "improvement" be meant to include the value of sheep or cattle that may be placed upon the lands.

Labourers, unless they be at the same time small capitalists, have the means of paying their passage out, and have a surplus over to invest, cannot of

themselves proceed to the colony. But they may be taken out by the more wealthy emigrants, who are allowed at the rate of fifteen pounds – that is, two hundred acres of land, for every labouring person (including under that denomination women, and children above the age of ten years) that they may carry to the colony ; and those who thus carry out labourers are to be made liable for their maintenance, in case that should be necessary. Here again, though the principle be unobjectionable, there is a want of explanation. No mention is made of the sum which the capitalist is expected to advance in addition to that which he may acquire from taking out labourers ; nor is it mentioned that these count for any thing in the improvement of the land by which the title to the fee-simple is to be acquired. Thus one is left to presume, that if a labourer, with his wife and three children, could find the means of landing in the colony, they would be entitled to a grant of one thousand acres of land ; and yet they are not in possession of that on account of which alone the license of occupation is to be granted. Therefore, to guard against misapprehension, it should have been stated, whether a labourer is rated at the value of fifteen pounds in capital, or merely as an addition that the wealthy settler may take out besides the property which entitles him to his grant ; and if the latter be the case, then the number of acres acquired by capital, with the corresponding number of labourers, ought to have

been stated. What may be the nature of the provision which those who carry out labourers shall have to make for them, in the event of necessity, is a matter for future regulation ; and the placing of the onus upon the particular party carrying them out, and not upon the inhabitants of the colony generally, may be attended with some little difficulty. The original bringer may be a bankrupt, or die, before the labourer becomes a pauper; or the labourer may have gone into other employment, and become a pauper there. Provision for the destitute poor is, under any circumstances, one of the most difficult branches of legislation ; and should the colony at the Swan River prove as successful in the issue, as it is promising at the outset, there can be little doubt that the burden of such persons as become destitute will be thrown upon the whole population of the settlement. That is the only simple and certain way, and it is also the fairest. Those who look superficially at the case, are apt to consider their contribution to the poor as a great hardship ; but the evil, where it does exist, is in the practice, and not in the principle. If it could be shown, that want of success in the world uniformly arises from want of desert on the part of those who are necessitous, then the supporting of them would be a real hardship to the rest of society, and they should be made to eat their alms in bitterness ; and as a portion, at least, of the want of success is the fault of the parties, the state of a pauper should always

be made one which would be resorted to only as a last shift. But success is so much a lottery, that it is no criterion of merit; and, therefore, the sum that the successful man contributes for the *bona fide* relief of the unsuccessful, whether statutory or not, ought always to be, in so far, considered as a votive offering of gratitude for his own better fortune. It is not necessary, however, to refine upon the question as applicable to any settlement existing in Australia; though, in the case of a new state, forming at a time when people flatter themselves that they are more than usually informed upon the subject, it would be well to prove that assumption by a *chef d'œuvre* of legislation.

The regulations, of which the substance has been given, are to continue during the year 1830; after which there will be new ones, arising out of the circumstances.

KING GEORGE's SOUND has been already mentioned. A kind of settlement was made there in 1826; but no very particular or flattering statement of the result of the speculation has been announced.

It has been already mentioned, that a settlement was once made at Port Phillip, a little to the westward of Wilson's Promontory in Bass's Strait, and that the absence of water in the dry season caused it to be abandoned. A journey was made from Twofold Bay, on the east coast, across the country to this part of the shore, in 1826, and the country

spoken of in no ordinary terms. At WESTERN PORT (a little south of Port Phillip) they found a mighty river, plains of unbounded extent and inexhaustible fertility, with *lignum-vitæ*, and Scotch haddock, (not smoked ones, but waiting to be so !) with endless delights. A convict settlement was the result ; and the plains were found, by the party which landed in the dry season, parched, and the river nearly dry. It is believed, however, that they remained ; though they certainly found nothing to render the character, which more scientific and cautious observers had formerly given to the coast, less applicable than it was previously.

#### VAN DIEMEN'S LAND.

Though the surface of Van Diemen's Land be much more varied than that of New Holland, the climate is more uniform, and approaches much more nearly to that of the British islands ; so that Van Diemen's Land is the place where an English agriculturist will find himself most at home ; and (as has been shown) as the soil and climate are the chief materials which Australia offers for human industry to work upon, those who cannot cultivate land are not qualified for being settlers. Besides the greater similarity that there is between the climate of Britain and Van Diemen's Land, there is the advantage of carrying produce more easily to the market. The distance from sea to sea, across

the best part of the island, is not so long as that from Sydney to the plains westward of the Blue Mountains; the road is not half so difficult; and the country is fit for settling along the whole line. There may not indeed be, in any part of Van Diemen's Land, the same continuous extent of rich surface that is found on the west of the New South Wales' mountains; but Van Diemen's Land has the advantage of being one country—a country in which the inhabitants of all the districts may, at short notice, communicate; and, therefore, if the colonies shall one day become, which every one must wish, independent states, that on Van Diemen's Land must, from its power of intercourse, be the best able to protect itself; and from the facility with which its shores can be approached, as well as the greater certainty of its harvests, it will be the first in a commercial point of view.

The topographical divisions of Van Diemen's Land are still more vague than those in New South Wales; and as there are yet no local jurisdictions, other than those of the Justices in the different districts, a list of the names given to particular places would have little or no public interest. The general features of the country have been traced in a former chapter; and the details of the unploughed part are only those limited in extent. The woods are, near the coast, of larger growth than is common in New South Wales, though Moreton Bay and the Illawarra forest are exceptions. The trees are also

greener, owing to the more frequent occurrence of rain. Few, if any, of the trees or shrubs that are found in the latitude of Sydney, even those which are highest upon the mountains, will bear the open air of England in winter. Some of those of Van Diemen's Land are much more hardy ; and it is by no means improbable that many of those shrubs (some of which are of great beauty) will be common in the ornamental plantations of Europe ; and that the *Acacia decurrens*, (which has been found to stand the winter), as well as several other trees, may increase both the beauty and the value of English forests. It is worthy of remark that both in Van Diemen's Land and in New South Wales, the acacia, in some of the many species, is the tree most disposed to grow upon those lands from which other trees have been removed ; and that too without any labour of planting, even upon lands that have been under the plough until they were exhausted for agricultural purposes.

The following account of the mode of settling is from Mr. Widdowson's unpretending but sensible little work on Van Diemen's Land :—“ That the colonies are to be divided into hundreds and parishes ; when completed, a valuation of the parishes will be made, and an average price set upon the land in each ; all the land not hitherto granted will then be put up to sale, at the price thus fixed. Any individual wishing to purchase land previously to the division of the country, must apply to the Governor through the •

Survey Office, through which department all correspondence respecting land must pass. Purchase money to be paid by quarterly instalments, or ten per cent. allowed for cash payments. On completing the purchase, the whole grants, in fee-simple, are given at a pepper-corn rent. The largest quantity said to be allowed on sale to any one individual, is nine thousand six hundred acres, or five lots of three square miles each ; and if more be required, application must be made to the Secretary of State, explaining the party's object and means. A purchaser may claim the return of his purchase money, any time within ten years, but without interest ; and if he prove that he has employed convicts to ten times the amount of the money, every convict is estimated at an annual amount of 16*l.* The largest grant I have heard of, made without purchase, was two thousand five hundred and sixty acres, and the smallest three hundred and twenty ; but in all cases grants are refused unless the party can show that he possesses property, and intends to expend it in cultivation to half the estimated value of the land. A quit-rent of five per cent. per annum, upon the estimated value is fixed upon every grant ; but this may be redeemed within the first twenty-five years, by paying twenty times the annual amount. In redemption of this quit-rent, the same regulations as to the employment of convicts are allowed as in the purchase of lands. No quit-rent is chargeable upon grants without purchase, till the expiration of seven

years; but at the end of that period each grantee must prove, to the satisfaction of the Surveyor General, that he has expended in the improvement and cultivation of the land, a sum equal to half its estimated value; on failure of which the land again reverts to the crown; nor can any additional grant be made, until the applicant can prove that this stipulated sum has been laid out on his original grant. Should, however, a person receive an additional grant, his quit-rent is payable immediately." The sum expended on the land must be in the permanent improvement of that, and not in animals; neither must he assign any part of his grant to any convict that may be allotted to him as a servant.

The obvious intention of these regulations is to insure the permanent settlement and improvement of the country; and, partly, no doubt, owing to them, partly to the settlement of the colony being more recent than in New South Wales, and partly to the superiority of the climate for agricultural purposes, the improvement has been much more rapid; and though there be yet no town upon Van Diemen's Land, that can be in any way compared to Sydney, in point of activity, or bustle of business, many of the inland places are superior, and the whole country has much more of a British air, than the other colony. One circumstance that has contributed to this is the greater number of British labourers that have emigrated, or been taken out by more wealthy settlers; and another consists in the less intercourse

that the colonists, more especially in the towns, have with the natives. About Sydney, the intercourse has been sufficient to impart a number of words to the colonial language; while in Van Diemen's Land, the presence of a native in Hobart Town is a rare occurrence.

## CHAPTER IX.

## TOWNS, BUILDINGS, &amp;c.

IN a new country, towns of much magnitude are not to be expected; though, as the bulk of the labourers in Australia have hitherto been persons who required to be kept in surveillance, and as, from the disparity in numbers of the two sexes, those labourers could not have settled, and become family men, had they been so inclined and permitted, the formation of towns became a matter of necessity. At Port Macquarrie, the Brisbane River, and indeed almost every place that can be mentioned, the original settlement has been a sort of military station or barrack, instead of little farmers setting themselves down upon their allotments, and constructing their habitations, and cultivating their lands, according to their own fancies. After the first settlement at

Sydney, at least after the first skirmish with the natives, the congregating of the settlers at an outpost to one point became necessary, in order that they might be able to repel any attack of the natives. Thus the original settlement of New South Wales may be said to have been a settlement of towns, which were entirely at first, and are still partially supported, on government stores; and the cultivation of the country has been all along a secondary object, except with a few spirited individuals.

SYDNEY, the capital, is built upon both sides of a creek or cove, which forms a southern branch of Port Jackson, and is about eight miles inland of the sea. The soil upon which the town is built is not rich, but it has that diversity of surface which conduces to promote cleanliness and health. As a seaport, no place could be better situated. The anchorage is abundant, and safe; and with the advantage of the lighthouse on the lofty summit of the South Head, it is easily entered. The first houses in Sydney were rude in their formation, and placed without regularity. They were not very durable, however, and thus a better plan has been introduced. The streets are mostly straight, of a proper width, and moderately clean. The principal street (George Street) extends from the sea, along the bottom of the hollow between the two ridges that form the cove. It is rather more than a mile long, and the other streets either intersect it at right angles and extend up the hills, or they run parallel to it. Thus there are the means of a com-

plete drainage. The only water, however, which the inhabitants have, except what they can procure by digging deep wells, or cutting tanks for collecting the rain, is in the same place as the principal thoroughfare. It is a very small rivulet, or rather rill, issuing from a marsh at a short distance; and thus during the dry season, it is impregnated with alum before it reaches the town, and with many other matters after it does. A large river flowing through a town is one of the greatest advantages that it can possess: a little rill, unless where the water can be useful in the arts, is almost uniformly a nuisance—people will call upon it to do more than it can perform.

That portion of Sydney which stands upon the ridge to the eastward, at the head of the cove, contains most of the public buildings and residences of the more respectable inhabitants. The portion to the west is called “The Rocks,” from being on a bare and steep foundation; and it is chiefly inhabited by those whose condition excludes them from what is accounted patrician society. The government-house is by no means an inelegant structure, and the grounds are well laid out.

Sydney is divided into the two parishes of St. James and St. Philip, and there are also chapels for various classes of dissenters. Shops, inns, and houses of entertainment are numerous, and the almost indiscriminate sale of spirits without license, can with the greatest difficulty be prevented.

The following extracts from Mr. P. Cunningham's "Two Years in New South Wales," are lively, and, in the main, not inaccurate:—

" You land at the government wharf on the right, where carts and porters are generally on the look out for jobs; and on passing about fifty yards along the avenue, you enter George Street, which stretches on both hands, and up which, toward the left, you now turn, to reach the heart of the town. Near the harbour, where the ground is very valuable, the houses are usually contiguous; but, generally speaking, the better sort of houses in Sydney are built in the detached cottage style, of white free stone, or of brick, plastered and whitened, one or two stories high, with verandahs in front, and inclosed by a neat wooden paling, lined occasionally with trim-pruned geranium hedges; they have besides, usually, a commodious garden backwards, decked out with flowers, and teeming with culinary delicacies. Into the enclosure immediately around the house, the dogs are commonly turned at night, to ward off rogues; and uncompromising, vigilant watchmen they certainly are, paying little of that respect to genteel exterior which their better-bred brethren in England are so apt to demonstrate. The streets are wide and unpaved; but their durable composition, and the general dryness of our climate, render paving unnecessary; while an elegant set of lamps, placed diagonally at fifty yards distance, by reason of the whiteness of our houses and the clearness of our sky, effect

an illumination equalling some of the best lighted London streets. Although all you see are English faces, and you hear no other language but English spoken, yet you soon become aware that you are in a country very different from England, by the number of parrots, and other birds of strange note and plumage, which you observe hanging at so many doors, and of which you will soon see cages full exposed for sale as you proceed. The government gangs of convicts, also, marching backwards and forwards from their work, in single military file, and the solitary ones here and there, with their white woollen Parramatta frocks and trowsers, or grey or yellow jackets, and duck overalls, (the different styles of dress indicating the oldness or newness of their arrival) all daubed over with broad arrows, P. Bs., C.Bs., and various numerals, in black, white, and red; with perhaps the gaol-gang straddling sulkily by in their jingling leg-chains, tell a tale too plain to be misunderstood. At the corners of streets, and before many of the doors, fruit-stalls are to be seen, teeming, in their proper seasons, with oranges, lemons, limes, figs, grapes, peaches, nectarines, apricots, plums, apples, pears, &c., all at very moderate prices." Vol. I. pp. 43, 45.

The nature of great part of the population rendering such an institution highly necessary, a pretty vigilant police has been established in Sydney, by which the number of depredations in the town is much less than one would be led to suppose; but in

the other parts of the colony, the scattered state of the population renders so perfect a system impossible. Mischief there is farther increased by the escape of convicts to the wood or "bush," though that is not so frequent in proportion to the number as it once was, partly because a better system has been introduced, partly because the natives are employed as a sort of police at the out-posts, and partly because former bush-rangers have been roughly handled by these people.

Though Sydney stands upon a considerable portion of ground, the population, owing to the detached mode of building the houses, does not probably exceed six or seven thousand. It however fluctuates a good deal, so that the actual number cannot be ascertained with precision. Some of the country houses along the shores of Port Jackson, more especially those near the road leading to Parramatta, are built, and the grounds laid out with considerable taste.

PARRAMATTA is the next town to Sydney; and though it be not very advantageously situated for commerce, it is on the line of one of the roads into the interior, which, with the beauty of its situation, must always render it a place of some resort. The land in the immediate vicinity is not indeed very good; but there are fertile tracts within two or three miles, and the site of the town has the advantage of fresh water, both from a rivulet and from some

springs. The ground to a considerable extent having been cleared of the forests of eucalyptus, patches of young acacias have sprung up in their place, and add much to the beauty of the scenery. Parramatta is nearly as long as Sydney, but the houses are built in a still more scattered manner, so that it does not contain above two thousand people, if it reach that number. The ground around it is elevated, but the town lies in a sort of hollow, which makes it appear to advantage when seen from the Sydney road; but in the dry months, when vegetation is burnt up, the high grounds reflect the light and render the heat excessive. The distance from Sydney by the direct road is about fifteen miles, and the distance between them by sea is at least three miles longer. There is no regular sailing between them, except in boats, not carrying more than fifteen tons, that being the greatest burden that the harbour of Parramatta will admit. In consequence, the town does not increase so rapidly in population as might be expected, as the people of the neighbourhood, instead of disposing of their produce to dealers in Parramatta, convey it immediately to Sydney. The governor has a house at Parramatta, and there are some of the public institutions there. There are regular daily coaches to Sydney. Houses of stone or brick are much less frequent at Parramatta than at Sydney, the greater number being weather-boarded on the outside, and plastered within.

WINDSOR, at the confluence of the South Creek

with the Hawkesbury River, is about thirty-five miles from Sydney, and it is better situated for trade, as the river admits vessels of one hundred tons to proceed four miles higher than the town. Above that, there are shallows which interrupt even barge navigation. Although the navigation to Windsor be open to vessels of the burden stated, it is very circuitous,—the river navigation to the sea at Broken Bay being nearly four times as long as the distance to the heads at Sydney. The situation of Windsor is pleasant. The mountains rise immediately to the west of it; the ground upon which it stands is rich, and yet above the highest floods of the Hawkesbury, and the low lands on the banks of the river, that are occasionally flooded, are, when not visited by that casualty, very fertile. Some of the land about Windsor is well cultivated; the roads are in tolerable condition, and the gardens are productive, but infested by birds. The population of Windsor is probably about nine hundred.

There are several thriving villages in the neighbourhood of Windsor. Wilberforce lies on the opposite bank of the river, about five miles farther down; and Richmond on the same bank as Windsor, about five miles farther up. Neither of them, however, contains many inhabitants, as the people in this part of the colony live mostly upon their lands near the banks of the river, where they can ship their produce, and obtain their weightier necessaries directly in return. The good land is nearly all

settled, so that the price, when it changes owners, is considerable.

LIVERPOOL lies about twenty miles south-west of Sydney, upon George's River, about twelve miles in a direct line, and twenty-four by the course of the river from Botany Bay. It is a small place, containing only two hundred or three hundred inhabitants; and there is little in the immediate vicinity to tempt an increase; but, lying upon the road to the more fertile districts in the south, it is of some importance as a station; and from the number of passengers that are going and returning between those places, it is kept in a state of considerable activity. Many of the other places that are mentioned as towns and townships, contain so few inhabitants, as hardly to merit the name of hamlets.

NEWCASTLE has been already mentioned as situated on the south side of the entrance to Port Hunter, and also as being the place whence coals are, or may be, obtained for the supply of Sydney. Originally it was a penal settlement, of trifling size, and the people employed chiefly in mining the coal or cutting timber. The subsequent discovery of a considerable quantity of good land on the banks of the river, to which Newcastle is the port, has caused more interest, and the settlement begins to have a commercial appearance, nor is there any question that it will increase. The barge and boat navigation of the river is of some extent, and there is a regular passage to the interior, but it is tedious.

The towns which have been founded at Port Macquarie, at Moreton Bay, and at Bathurst on the west of the Blue Mountains, are yet comparatively in their infancy ; though those on the coast will, in time, from the superiority of the land, especially at Moreton Bay, and the nearer approach of that place to a tropical climate than the old colony, make them the seats of considerable population at some future period,—and the want of any communication with the coast must render Bathurst a sort of capital to the interior.

**HOBART TOWN.**—Of the capital of Van Diemen's Land, Mr. Widdowson gives this general description :—“ The town contains about one thousand houses, and the population may be computed at six or seven thousand ; judging from the new buildings now (1826) erecting, the number of children, and the immense shoals of emigrants and convicts lately arrived, I should say, that both houses and population bid fair to double their numbers in a few years. The houses, generally speaking, are of wood, with a small garden before them, but which is usually kept in a manner so slovenly as to be any thing but an ornament to the premises. Almost all the new buildings are either of brick or stone ; the former appear of a good quality ; the freestone is very beautiful, but excessively dear. Many of the houses are built of rough hewn stone, and then cemented with stucco.”

The harbour of Hobart Town is very commo-

dious; and though the site upon which the town is built was originally swampy, and, in consequence, dirty, it is in a state of rapid improvement. The municipal regulations were, at one time, very lax, and the town was, in consequence, both dirty and dissipated; but a more vigilant police has been established, and matters are, in consequence, very much improved. The general character of the town population does not, however, stand very high: they live chiefly by supplying settlers, and accommodating them till they have found land to their tastes, and they have the name of demanding very ample payment for what they give. There are some small townships on the Hobart Town side of the island, but as yet they are small, and for a long time the superiority of its harbour must make Hobart Town the principal place of resort.

LAUNCESTON, the principal town on the Cornwall or north side of the island, is by no means so populous as Hobart Town. The situation upon which it is built is fertile, but low, and contiguous to a marsh; so that the atmosphere is loaded with fog, and the streets deep with mire in rainy weather. But the country in the vicinity is good, and a considerable quantity of grain is exported; and the town must improve. Indeed the improvement has begun; for the low wooden houses, in which the population were originally lodged, are giving place to edifices of more ample size and more lasting materials. Its distance from the sea must prevent Laun-

ceston from ever being such a place of resort as Hobart Town, although, as the tide rises fifteen feet, there must be water for considerable vessels; some of three hundred and fifty tons have taken in a heavy cargo, and dropped down the river in perfect safety. The land on the banks of the river is, however, rather of an unpromising character, so that the long navigation of forty miles of an estuary, serves only for connecting the interior with the sea.

In consequence of the distance up the river to Launceston, **GEORGE TOWN** was established on the estuary nearer the sea. Hitherto there has been little to attract settlers to the new town, the chief trade of the river having been with Sydney, in vessels not exceeding two hundred tons burden; and as such can pass up and down the estuary with facility and safety, a lighterage of produce to George Town would be a loss rather than a gain. The situation and environs of the town are remarkably sterile, so that the place has no attraction, for any other purpose than as a military or a carrying station. Military stations are not much wanted in Australia; and from what has been said, it appears that this one is not, in the mean time, required for the other purpose.

## CHAPTER X.

## COLONIAL POPULATION.

OF a population so formed as that in New South Wales and Van Diemen's Land has been, it is by no means easy to give a correct estimate. The total number may be estimated, in New South Wales, at from forty to fifty thousand, about equal to that of a third-rate European city. Of this population, about one half consists of convicts in a state of servitude, of whom a considerable number work in chains; and among them all, the women bear but a small proportion to the men. About a fifth more may consist of emancipated convicts, and of the remaining twelve thousand, nearly one half may be reckoned as born in the country—so that the voluntary emigrants from England, including office

bearers and military, do not exceed six, or, at the most, seven thousand. The natives, too, perambulate the streets, and visit the settlements, armed with their spears and waddies, so that the present population, as well as the elements from which, and the example by which, future generations are to be formed, are of the most motley description. Legislation is the effect, and not the cause, of national character ; and, therefore, there are no means of making the character of this people English, or even of giving it a permanent principle of union. The small portion that is without any taint must look down, not only upon the much larger portion that is in servitude or in chains, subject to martial law, and debarred from even the private rights of citizenship, but also upon those who, though now free from the actual punishment of their offences, are neighbours only because they have once been criminals. This is an evil which time only can heal, and in which the curative process can begin only when fresh bands of criminals cease to be imported. Nor is it confined only to the actual criminals, but will descend as a legacy to their children ; it being difficult to separate from these a certain portion of the odium of their fathers' conduct, and not very easy to get rid of the belief that they deserve it, even though that belief has no foundation in fact. Those who look only at the individual fact, may complain that there is hardship

in this, and that is the view that the law should take of it,—as the instant that it either acquits or condemns on any other ground than the facts of the case before it, it becomes liable to error, and may be the dupe of groundless calumny, or of false praise, resting upon no better foundation. With society, however, the case is different, and that which would be cruelty in the law becomes prudence there. The stigma which guilt leaves acts as a preventive of crime, and the benefit of character is one of the strong holds by which character is preserved. But there is no need for arguing the principle of that want of cordiality which exists among the mixed population of New South Wales; it is what any one acquainted with human nature would expect; and it is what is found to exist.

So far as respects those who are actually criminals, the case does not admit of a direct remedy; because if men in different states or aspects of society are to meet upon terms of equality, they must meet half way; and the necessity of this is the same whether the ground of distinction lie in the rank or wealth, in intellectual acquirements or in moral character. Nay, it is not even a half-way meeting, for the party that has to descend must move over the greater part of the distance,—more especially if it be a movement of the whole of the one class toward the whole of the other, and the disparity in numbers such as has been stated as existing in Australia.

But between the free emigrants and those who are born in the colony, that unity which is so essential to the prosperity of a community, especially of one that has its land to reclaim from a state of nature, and all the machinery of its domestic economy to put in motion, there are animosities arising from other causes. One of these is the application of generic names. Those who are born in the colony are called *Currency*, and those of English or European birth, and who have not found their way there in such a manner as to entitle them to the cant name of *Legitimates*, are called *Sterling*. It happened, too, that when some idle officer, who had more pretensions to humour than title to understanding, imposed those names, the currency of the country was depreciated below the value of sterling money. The names, *Currency* and *Sterling* thus became at once badges of inferiority and superiority, and tended to set the two classes of the people against each other. The history of all ages and countries is full of accounts of the mischief that has arisen from names. The fact is, that in all cases where party animosity extends to a great number of persons, it is the name, and the name only, that influences the majority. Of abstract justice, both sides have often a pretty equal share—haply no share at all; and few of the number that rally at the name have any individual grievance which would be made lighter by the triumph of the party; but they are not upon

that account the less intolerant or persisting in their animosity.

Now the separation of the *Currency* from the *Sterling*, which has been occasioned by application and the use of these names, has disjoined those whose interest it ought to have been to unite, as they are each in possession of information that would be useful to the other. The emigrant from England brings with him, or receives in his correspondence, the information of Europe, which cannot fail in being useful to those who are born in a society so small and so scattered as that of Australia; while the native of the colony has, on the other hand, an experimental knowledge of it, which must prove just as useful to the emigrant.

Of the character of the colony-born population there are but few data for judging. Probably it is not very easily obtained in the colony; and certainly nothing has been published bearing the stamp of that philosophical observation and impartiality which are absolutely necessary. If we can believe the reports that have been made, they are more moral and regular in their habits than the population from the mother country; but whether that applies to the latter generally, or to that portion only which has been emancipated from the convict state, is not mentioned. In their physical character there appears to be a slight deterioration; they grow up more rapidly than in England, and begin to decay sooner: and

though they have not become dark, they are sallow in their complexions. These are changes that might be expected: the unsettled climate of England, which is so often the ground of complaint, is really that which renders the constitutions of Englishmen so robust and so pliant to all countries and climates, though it diminishes that rapidity of growth, by which people, less knit and durable, spring up. In England the change of weather comes before the child has had time to be so habituated to the former state as that the change shall require a great effort of nature; while, when the year is halved, or even quartered, between the dry and the rainy, the transition from the one to the other gives a shock to the constitution.

The colonial population of Van Diemen's Land amounts probably to about half the number in New South Wales: and as they are diffused over a much smaller extent, the country has more the appearance of being peopled. There are not the same animosities between the different classes as in Sydney, though Hobart Town has also been the seat of no small portion of squabbling. Van Diemen's Land has been much more infested by escaped convicts, among whom there have been some of the most revolting traits of villainy that are any where to be met with. In the remote settlements the blacks are also more destructive and implacable than near Sydney—no doubt because they have got more provocation,

especially from the bush-rangers, who, till they were literally hunted down, prowled in bands, were armed, and sometimes, according to the accounts, fed upon the bodies of their victims. These enormities, however, have been much checked, and the population of both colonies is in a state of improvement.

## CHAPTER XI

## INSTITUTIONS—CULTIVATED PRODUCE.

NEW SOUTH WALES and Van Diemen's Land are under the controul of governors,—he of the former being Governor General, but the latter having the power of acting independently in his absence. Each of the governors is assisted by a Legislative Council of seven persons, chiefly, it is believed, composed of the principal stipendiaries of the Government, and sworn to secrecy. The governors are appointed by the crown, and the councils, in the first instance, by the same; but the blanks are filled up by the governor: so that the whole power, legislative, financial, and executive, is in him, controuled by the British acts of parliament. There are separate courts of law and equity for New South Wales and Hobart Town; but in the other parts, any case involving above ten pounds must be carried to these.

The decrees of the government are promulgated in those colonial newspapers which are accounted official ; and, as might be expected, they are warmly commented on by the opposition papers, which are the only vehicle of popular opinion.

For the education of the poor there are a good many schools, the teachers of which are paid out of the public funds. In these the first rudiments of education only are taught : and as they are chiefly upon the mechanical, or, as it is somewhat unfortunately termed, the “national” system, their influence upon the minds, and, consequently, upon the morals, cannot be very great. Keepers of boarding schools for both sexes find employment among the more wealthy settlers ; and these advertise an abundant list of subjects, but no estimate has been taken of their own capacity. If the native writing can be depended on as a criterion, the intellectual state of Australia does not rank very high, either in extent or in accuracy of information,—though perhaps as high as, under all the circumstances, could be looked for. An institution has been formed at which some of the native children are educated, and these are reported as making equal progress with the whites. But it has been mentioned, that the natives are remarkable for their powers of imitation, and also that the teaching is mechanical, and therefore their adroitness in conning by rote is no proof whatever of intellectual acquirement. It is said, too, that the natives who have been thus educated prefer the free range of the

bush to the labour of colonial life, even with all its superior accommodations.

Australia has not yet been formed into a diocese, but is under the Bishop of Calcutta, who has thus a range of territorial jurisdiction not much inferior to the Pope himself. The establishment consists of twelve clergymen, under the superintendance of an Archdeacon, who has projected, if not already carried into execution, a superior kind of public seminary at Sydney, at which such of the native youth as may be so disposed, can be prepared for the English colleges.

The cultivated produce includes all the more useful descriptions of animals and vegetables. Great attention is paid to the breeds, and high prices are often paid for choice stock from the mother country. Except where the land is very elevated, it is, at first, better adapted for cattle than for sheep; though, after a time, the latter have been found to answer so well, that Merino wool, of the finest quality, is produced in both islands, and may soon be in such quantity as to form a valuable export for the colonists, and an equally valuable import for the mother country. That the natives of New South Wales should send their wool to a distance of sixteen thousand miles, and receive back cloth, into the manufacture of which it enters, from the same distance, may seem a little absurd; but it is not so in reality, as the expense of preparing the requisite machinery would exceed the freight both ways, as well as including

the wages and profits of all the parties intermediate between the grower and the consumer. There is a division of labour among countries, as well as individuals ; and we believe the facts have already shewn, that the Australian colonists may be more naturally and more profitably employed in extending their agriculture, than in any mechanical art, in which complicated machinery, and great practical dexterity and experience, are required. If they had attended a little more to the native resources of their country, and the best means of turning these to account by simple operations, and had been less solicitous about manufacturing, there is no question that they would have been a little wiser, as well as a little wealthier, than they are at present. Their breweries and distilleries, as well as their manufactories of leather, carriages, and all other matters for rural purposes, are both necessary and praiseworthy ; but, even though other circumstances were not against it, the great bulk of their labourers are not of a character to be trusted with products valuable in a small bulk, or immediately available as merchandize, or even with valuable tools.

Of grain crops, wheat and Indian corn are the staple about Sydney ; and the latter gets more and more the staple northwards ; while wheat is more abundant in Van Diemen's Land. The wheat which is grown upon the flooded lands in New South Wales, is inferior to that on the lands not flooded ; and spelt wheat, which, in the colony, is confounded with, or

rather mistaken for, Siberian barley, is pretty extensively cultivated under the general name of skinless barley. Neither barley, properly so called, nor oats, is very profitable in New South Wales, though both thrive very well in the southern colony. The seed time in New South Wales is in June, for barley and oats, though they may be sown a month later; and wheat answers best when sown a month, or even two months, earlier. Indian corn is most profitably planted in October, though it may succeed any time from the beginning of that month to the middle of December: its produce, on the richest flooded lands, is about ninety bushels an acre; barley and oats about half as much; and wheat about a third. On lands not flooded the crops are much smaller, and they are precarious in consequence of the droughts; but, with the exception of Indian corn, the grain, when the crops do not fail, is of superior quality, so much so that, measure for measure, the wheat is about fifteen per cent. heavier. In Van Diemen's Land, the seed-time is a month or six weeks later than in New South Wales, though wheat may be sown in November, and reaped in March. Indeed, upon favourable situations in that colony, the farmer has a great range both for seed-time and for harvest. The barley of Van Diemen's Land is not, however, the barley of England; but a grain which contains more gluten, and is, on that account, not so well adapted for malting.

Potatoes are not good in New South Wales; but

they are abundant, and of better quality, in the other colony, where they form an article of export to Sydney. The different species of pulse are not, we believe, much cultivated, and beans will not pod, even in Van Diemen's Land. Turnips swell to an immense size there, but are rather spongy. That too is the best place for cultivating the green feed used for stock in Europe.

The agriculture of both colonies is rather slovenly, inasmuch as, with indifferent tillage and no dressing, they grow the same crop on the same land for a dozen of years running. Therefore, seven years at least of more skilful cultivation must pass over before the agricultural value of the rich lands between the Derwent and the Tamar can be accurately decided--if, indeed, its continuing to yield any sort of crop of wheat, for the number of years and with the treatment above mentioned, be not at once decisive in its favour. As the evidence stands with regard to the settled parts of New Holland and Van Diemen's Land, the conclusion, though but an imperfect one, seems to be that the former is, except for Indian corn, less fit for agriculture than the latter, though it be well adapted for grazing, in all situations where there are water and food during the dry season. Van Diemen's Land, equally well adapted for grazing, and less exposed to the risk of being burned up, might, with proper cultivation, be made highly productive as a corn country, and supply not only the sister colony, but countries at a much

greater distance. Some parts of the shores of New Holland are adapted to the growth of vegetables which would hardly come to maturity in Van Diemen's Land. Sugar canes, as well as the coffee and cotton plants, might grow in the more tropical parts ; on which there is no doubt that the cocoanut, and that most productive of all vegetables, the banana, would also come to perfection. Rice, too, would succeed in the flooded grounds, and tobacco might be cultivated in many parts of the country. Nor is there any reason to suppose that the tea-tree of China might not put forth its leaves,—though it be doubtful whether that be a species of culture that would repay the labour any where but in China. In these tropical productions, however, the colonists would have to compete with countries in which their growth is already well understood, and therefore a considerable time must have to elapse, before they could come into the general market ; and, probably, a considerable time would have to elapse, before they could undersell in their own country those nations by whom they are at present supplied.

Cauliflower and brocoli, as well as many other garden vegetables, come to perfection in New South Wales, and they have a great variety of fruits. Of those known in Europe, they have the grape, the olive, the nectarine, the peach, and all the more common sorts ; while the guava, the loquat, and several other tropical fruits, come to perfection. Gourds, cucumbers, and melons grow freely in the open air ;

and the pine-apple, which requires the assistance of a tan-pit in England, ripens under a common hand-glass. The climate is too hot for perfecting apples, currants, or gooseberries, though trees are abundant. Peaches are as plentiful as in the United States, and are used, as there, in the manufacture of a kind of cyder, and the fattening of pigs. Van Diemen's Land, from its more cold and moist climate, is better adapted for the common European fruits; though there the vine comes to sufficient perfection for the making of wine, which may at some time become an important product of the colony. Thus, though the esculent vegetables and fruits which are indigenous in these colonies be few and unimportant, the list of those that have been introduced is both extensive and valuable.

## SUPPLEMENTAL NOTE.

THE following extract of a letter from Mr. Allan Cunningham, dated "Sydney, April 28th, 1829," and received on the 6th of September, throws important light upon the geography of the central parts of New Holland. That gentleman's conjecture that a great salt river rolls from the parched flat to that portion of the north-west coast where Captain King found so violent a current, has no small degree of plausibility ; and the whole of the new facts render the more careful examination of the country, and the ascent or descent of the river (if such shall be found to exist) all the way to the sea, far more desirable than ever.

" Captain Sturt and his party of discovery," says Mr. Cunningham, " penetrated two degrees of longitude to the westward of the point where Mr. Oxley, 1818, turned back in the swamps of the Macquarrie. He found the same country parched with drought, which in 1818 was a perfect sea, as far as could be discovered.

" The Macquarrie had ceased to be a river, and there was no trace of its bed on those vast levels over which its waters are so extensively distributed

in floods. Passing on to longitude  $145^{\circ}$ , E., in the parallel of  $30^{\circ}$ , Captain Sturt was surprised to fall in with a river, about half-a-mile wide, and flowing towards the south-west, its waters being as salt as strong brine. Finding a hole of *freshish* water, at some short distance from the bank, he encamped his people at it; and then, with a companion, rode down the river about four miles. Finding no water to drink, and that the river had become much salter, they returned to the party, and got back to Mount Harris, a hill on the Macquarie. Thence they proceeded, till they came to the Castlereagh of Oxley, which they traced to its confluence with the salt river, about fifty miles from the point at which Mr. Oxley had first seen it. A low depressed country, destitute of food for his horses and bullocks, and without fresh water, obliged him to make a hasty retreat, eastward to higher ground; and having lost all his dogs, by heat and extreme exhaustion, he hurried on for Bathurst; and reached Sydney two days after,—having been out since the month of November.

“ The result of his expedition is simply this:—That below Mount Harris the country is totally uninhabitable, and that for two reasons—first, in dry seasons, like the present, there is no water on which civilized man could subsist for six months, without engendering bowel-complaints, cutaneous diseases, and other maladies. Secondly, in a season of protracted rain, such as I have witnessed in our colony,

and which Mr. Oxley met with on the Macquarrie, in 1818, the whole is extensively inundated.

“ The ‘ Salt River’ (discovered last January) is rather a large stream, formed of the Castlereagh, Macquarrie (when it exists), Mr. Oxley’s Field, which drains Liverpool Plains, his Peel, and my Gwydir and Dumaresque, each two hundred yards wide, discovered in 1827. These unite, and constitute what is now proposed to be denominated the *Darling*! It is from half-a-mile to three-quarters in width, and bounded by steep red banks. The circumstance of its being salt is explained in this way: constituted of the several streams above enumerated, it flows down a declivity of country to about five hundred feet above the level of the sea. There (in longitude one hundred and forty-five degrees east) it passes through an inhospitable region, the soil of which is saturated with mineral salt,—brine springs having very frequently been seen boiling up a foot above the surface. In consequence—notwithstanding its considerable breadth—its waters are, at this dry season, so perfectly charged with salt, as to render them totally useless to drink. What becomes of this river, which is really the general drain of the country, remains doubtful. I have had a long conversation with Captain Sturt, the result of which has been, to induce *me* to give it as *my* opinion that, although it tended south-west toward the south coast, it eventually takes a decided bend to the north-west; and then (to carry on my theory of our

interior) flows across the continent to the north-west side, where (in latitude 17°) it is poured into the ocean."

This information, though it does not overturn any thing confidently stated in the preceding pages, will yet render it necessary that some portions should be read with a little modification, or, more strictly speaking, extension. The journey of the Darling River to the north-west coast, if such be its termination, is a long one; but even the flood discovered on the south, in the rainy season, will not admit of the termination of so large a river that way; and there is at least an additional shade of probability given to the hypothesis of a north-western discharge of some mass of salt water. On the coast partially seen, Captain King met with violent currents, which, without any previous knowledge of a salt river, led him to conclude there must be an inland discharge; and as the source and the apparent exit of a salt river are discovered, it is very natural to unite them, until experience shall show cause to the contrary.



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